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IT MANAGEMENT 101

Five veteran IT executives offer advice on how to succeed in your new role as manager. Page 54

E-COMM ANYWHERE

The day is coming when appliances, not PCs, will be consumers' door to the Web. Is IT ready? Page 42

SECURITY JOURNAL

Week Two: Our security manager tackles a challenge involving a remote mail server. Page 68

COMPUTERWORLD

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MARCH 20, 2000 ▪ VOL. 34 ▪ NO. 12 ▪ $4 COPY

AIRWAVE AUCTION RAISES HACKLES

It's users vs. carriers in fight for frequencies

BY BOB BREWIN

Get ready for the spectrum war — a battle between the biggest cellular carriers, which are lusting after new frequencies, and corporate wireless users, who want a sliver of the spectrum for themselves.

The Federal Communications Commission, which will auction 36 MHz of spectrum in June, earlier this month laid the groundwork for what could be a fierce legal slugfest. It sliced 6 MHz out of the spectrum and will auction it off to "private wireless" corporate users.

Airwave Auction, page 16

JUST THE FACTS

Spectrum War

Who: Large nationwide cellular carriers vs. business and industrial wireless users

What: 36 MHz of spectrum in the 700-MHz frequency band is occupied by television channels 60 to 69. The 6 MHz of "guard band" that protects public safety users will be auctioned by the FCC to business users in the spring

How much: More than $2B

Why: Cellular industry claims that it needs all 36 MHz. Corporate users claim thet they require the 6-MHz guard band spectrum to meet wireless requirements more efficiently than buying service from cellular vendors.

B-TO-B EXCHANGES BYPASS MICROSOFT

Technology has kept it on sidelines as Oracle, Ariba, others tout new business

BY DOMINIQUE DECKMYN AND CHRISTINE MCGEEVER

ELECTRONIC COMMERCE

In the midst of an exhilarating e-commerce landgrab, one software company is being left behind: Microsoft Corp.

In just the past three weeks, established powerhouses like IBM and Oracle Corp. have won deals to provide database engines and applications for multiple exchanges. And relative newcomers like i2 Technologies Inc. in Dallas, Ariba Corp. in Mountain View, Calif., and Commerce One Inc. in Walnut Creek, Calif., are integrating e-commerce features such as procurement and supply-chain management.

But Microsoft is nowhere in sight.

"From a marketing point of view, Ariba, Commerce One, i2 and Oracle have cornered the B-to-B market," said Carl Lenz, a research analyst at Gartner Group Inc. in Stamford, Conn.

And at this stage, Lenz noted, marketing is all there is. None of the announced exchanges is processing e-commerce transactions — indeed, the players are still sorting out their contracts and obligations.

Still, analysts said, Microsoft isn't a contender because it has

B-to-B Exchanges, page 97

'EASI-ORDER'

BRITISH CUSTOMER ANITA MORGAN says she likes the convenience of Safeway's unique grocery-ordering system

SAFEWAY PLC IN THE U.K. is giving Palm IIIs to customers for free. Is that crazy? No — shrewd. Gary H. Anthes reports on Easi-Order, a new home-shopping service that lets British consumers order groceries with a Palm device and the telephone. In the background, an ultrasophisticated data mining operation makes helpful (revenue-enhancing) suggestions for the shopping list. The unique setup — three years ahead of the competition — is already building customer loyalty.

Story begins on page 46.

Inside: More B-to-B News

- Kraft, Procter & Gamble and Nabisco head up a food and consumer goods exchange. **Page 14**
- Cargill takes an equity stake in Novopoint.com, its second B-to-B marketplace in two weeks. **Page 14**
- Six freight companies launch Transplace.com, a "one-stop supermarket" for transportation services. **Page 14**
- Manufacturing Central will be a hub of electronic marketplaces. **Page 16**
- Dell will create a B-to-B marketplace for its customers. **Page 14**

B-TO-B: NOT IN IT FOR THE REVENUE

Manufacturers seek to improve service, cut costs

BY JAIKUMAR VIJAYAN
CHICAGO

Consumer Web sites may be after revenue, but some business-to-business sites aren't even going to pretend that their e-commerce efforts will bring in much money.

Many manufacturing companies are Internet-enabling their businesses not to immediately increase revenue or find new customers but rather to improve customer service and reduce operating costs.

So said manufacturing company representatives at the National Manufacturing Week trade show here last week.

"The real business value of having our Web site is not so much the ability to buy prod-

Manufacturers, page 16

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Hoteling is a cost-effective way for employers to provide work space for telecommuters, contractors and part-time employees. A *Computerworld* survey looks at why companies are hoteling and the technology challenges involved. Page 77

HANDS ON

The Pocket PC is Microsoft's third try at running Windows on handheld computers. After trying it out, reviewer Russell Kay thinks Microsoft has finally gotten it right – and none too soon – with an intelligent small-screen browser and a terrific electronic-book reader. Page 72

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QUICKSTUDY

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MICROSOFT IS CHANGING THE MORTGAGE PROCESS, WHICH HASN'T CHANGED IN ABOUT 50 YEARS. IT'S ABOUT DAMNED TIME.

JAIME PUNISHILL, FORRESTER RESEARCH INC., ON MICROSOFT SOFTWARE DESIGNED TO AUTOMATE MORTGAGE PREPARATION

SEE PAGE R7.

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AT DEADLINE

Wireless Access to Flight Information

Northwest Airlines Inc. has taken to the air with a slimmed-down version of the Northwest Web page, offering travelers the ability to check flight arrival and departure information over Wireless Application Protocol phones. The service will also allow travelers to receive real-time departure and arrival information as well as check their frequent-flier mileage.

Ford to Equip Lincolns With Built-in Wireless

Sprint PCS Group and Ford Motor Co. have teamed to offer built-in digital wireless service in 2001 model year Lincoln cars that will automatically transmit a call for help upon deployment of the car's air bag in an accident. The new service, built around a dual-band Motorola StarTac wireless phone, will also automatically transmit the location of the vehicle, Sprint said.

Virginia OKs UCITA

Flanked by the chairman of one of the state's largest businesses – America Online Inc.'s Steve Case – Virginia Gov. James Gilmore last week signed the Uniform Computer Information Transactions Act (UCITA) into law, making Virginia the first state to do so. But the bill won't take effect until July 2001, a delay that came at the behest of some of the state's largest nontechnology companies, which believe UCITA gives software vendors the upper hand in software licensing.

Short Takes

3COM CORP., which had originally scheduled analyst briefings in February, moved the meetings to the week of March 20, allowing the dust to settle on the spin off of its PALM INC. business on March 2. Reorganization is now in the wind for 3Com, according to analysts. . . . Scientists at IBM RESEARCH's laboratories have discovered chemical reactions that could eventually let computer hard disks and other data storage systems store more than 100 times more data than current products, the company said.

A&P's $250M IT Plan Shunned by Wall Street

Grocer says supply-chain system key to resurgence; investors downgrade rating

BY BAMI LAIB

THE GREAT Atlantic & Pacific Tea Co.'s announcement of a four-year, $250 millioo systems overhaul sent the supermarket chain's stock ratmg into a tailspin last week.

The project, to develop a supply-chain and business operations system, will cut fiscal 2000 profits by as much as $1.50 per share, A&P said, from about $3.

Nonetheless, the company should save $325 million over the four years by lowering costs aod improving product availability and raise pretax operating profits by $100 million per year once it's complete, A&P said.

A&P is hoping that the overhaul will transform core business processes and is looking to engage in business-to-business e-commerce with its suppliers and use store-specific data to tailor purchasing, President and CEO Christian Haub said in a statement.

A&P executives couldo't be reached for comment.

But Lehman Bros., a New York investment company, estimated the toll on earnings tu be higher than A&P estimates — at closer to $2 per share — and changed Montvale, N.J.-based A&P's stock rating from Neutral to Buy.

"By making these investments," Lehman financial analyst Meredith Adler said of the planned systems overhaul, A&P managers "are taking value away from shareholders."

The chainwide information technology implementation replaces a "hodgepodge of systems cobbled together over 20 years," said John Goedert, a senior vice president at Retek Inc., which is providing software for tbe project.

"A&P wants to move quickly into [creating and using an unline] exchange and business-to-business initiative," he said.

Retek, in Minneapolis, will deliver retail merchandising software, including supermarket-specific software, to individualize store offerings, and IBM will contribute hardware and professional services, Goedert said.

Ongoing Campaign

The IT overhaul is just the latest move in A&P's campaign to revitalize the troubled chain, which includes A&P, Food Emporium and SuperFresh stores, said Marvin Roffman, president of financial manageoeot firm Roffman Miller Associates in Philadelphia.

Since 1998, A&P has sold off more than 100 "underperforming" stores. And last month, it reorganized management into regional divisions.

But the turnaround has been slower than hoped for, according to Adler. Against growing competition fueled by an aggressive rate of chain consolidation, A&P must find a global partner in order to survive, she said.

Wheo A&P finds that partner, it will have to convert to that partner's systems, rendering the planned "risky" investment redundant, Adler said.

But increased efficiencies resulting from the overhaul could ultimately make A&P more attractive to potential partners, Roffman said.

Founded in 1859 in New York, A&P was an American institution for much of the past century. In 1950, its annual sales were second in the U.S. only to General Motors Corp., according to the company. ▶

ETrade Makes Move From Clicks to Bricks

Acquisition makes brokerage No. 3 ATM operator

BY MARIA TROMBLY

Online brokerage ETrade Group Inc. stepped firmly onto bricks and mortar last week, acquiring an automated teller machine (ATM) network with 8,500 locations to become the third-largest ATM operator in the U.S.

ETrade's deal for Portland, Ore.-based Card Capture Services Inc. — the largest independent network of centrally managed ATMs — is part of a growing trend in which Internet-only banks find alliances or acquisitinns that give them real-world access to customers.

Virtual banks, sucb as ETrade's Telebank unit, have been handicapped by a lack of branches and ATMs, analysts said. ETrade merged in January with Arlington, Va.-based TeleBanc Financial Corp. and was the first Internet-only bank to reach $3 billion in retail consumer deposits this month.

"Telebank hasn't had a widespread growth in accounts and assets to the extent of the traditional banks," said Larry Tabb, an analyst at TowerGroup in Needham, Mass. "Most people look for a bank that has a large number of branches and ATMs, so when they want to make a deposit, they can."

ETrade said the acquisitinn will overcome one of the last barriers to widespread adoption of Internet banking.

ETrade, in Palo Alto, Calif., said it will use the ATMs to create a network of financial services kiosks that offer users access to all of its financial services, sucb as stock trading.

"Now three of the major Internet-only banks have their own physical capability," said George Barto, an analyst at Gartner Group Inc. lo Stamford, Conn.

In additinn to ETrade's Telebank, New York-based American Express Co.'s Membership Banking and Chicago-based Bank One Corp.'a WingspanBank.com give their customers access to ATM networks.

Barto said ETrade will rejigger the way the ATM network makes money because ATM fees may not be around forever.

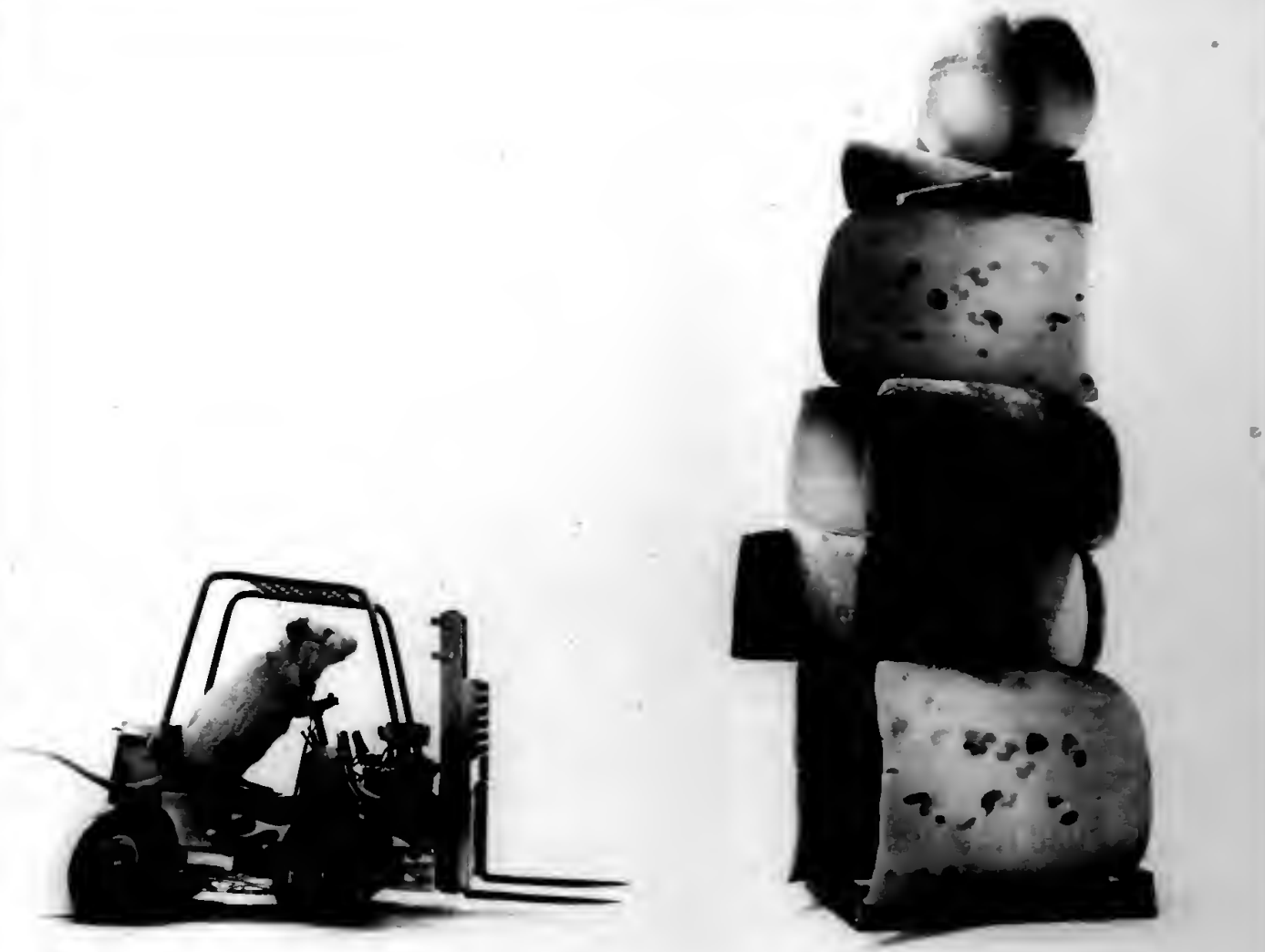
In fact, ETrade said it plans to offer everything from cash withdrawals and deposits starting this summer to stock trading on its new ETrade-branded ATMs. These ATMs generate more than 3.1 million transactions per month and are located in hotels, shopping malls, grocery stores and gas stations.

The world's first virtual bank is also expanding into bricks and mortar. Mootreal-based Royal Bank of Canada, owner of Atlanta-based Internet-only $1 Corp., made an offer to buy Chicago-based Prism Financial Corp., which has 159 retail branches. ▶

Teller Machines Abound

Leading U.S. ATM operators:

COMPANY	ONLINE BANK NAME	NUMBER OF ATMS
Bank of America	Bank of America	14,000
American Express	Membership Banking	8,762
ETrade	Telebank	8,500



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Europe and U.S. Agree on Data Rules

Under pact, EU citizens will have stronger privacy protection than U.S. citizens

BY PATRICK THIBODEAU

A DATA protection agreement between the European Union and the U.S. will simplify e-commerce managers' tasks in dealing with complex European privacy laws. But it also imposes limits on how U.S. companies can use data collected in Europe.

The safe harbor agreement is intended to protect U.S. companies from the EU's Directive on Data Protection, which prohibits transfer of personal data between countries that don't provide "adequate" protection.

Companies that participate in the safe harbor "will then be protected from any arbitrary action by European data protection authorities to cut off data to their companies," said lead U.S negotiator David Aaron, the undersecretary of commerce for international trade.

Compliance Requirements

Companies that intend to comply with the agreement will inform the U.S. Department of Commerce. However, complying with the safe harbor rules will likely require companies to review their data-sharing and retention practices, and it could lead to some painful changes, especially for firms that transfer information to third parties, warned James Maxson, an attorney at Paul, Hastings, Janofsky & Walker LLP in Atlanta. "You have to know what shape your house is in — you have to know what you are doing internally," he said.

U.S. companies that sell goods and services via the Web in Europe but don't have any physical presence there may also want to follow the safe harbor rules, said Aaron. "It will be kind of a Good Housekeeping seal of approval for Europeans who are very sensitive about this issue," said Aaron. "It will be a competitive advantage, I think, for companies to sign on."

The 15-member EU will vote on the agreement at the end of this month. The agreement isn't expected to take effect until this summer. Financial services are excluded for now. Negotiations are still continuing, but Aaron expects them to be completed by year's end.

With this agreement, European citizens will gain stronger privacy protection than American citizens. That disparity has drawn criticism from U.S. privacy advocates. It's possible that U.S. companies that participate in the safe harbor pact may have separate privacy policies for the U.S. and European customers.

But David Sorkin, a law professor and privacy expert at John Marshall Law School in Chicago, said he doesn't believe the safe harbor agreement will be a major factor in the privacy debate. Sorkin said big issues, like DoubleClick Inc.'s controversial plan to link Web browser clicks to browser users, will drive this debate, while international privacy policies escape attention.

European Data Rules

U.S. companies that comply with safe harbor guidelines will meet European Union data protection laws. If a company violates privacy policies, it could be subject to action by the U.S. Federal Trade Commission. Posted privacy policies must include:

- Purpose and use of data collected
- Ability to opt out of third-party distribution
- Access for consumers to their information
- Adequate security, data integrity and enforcement provisions

Full details are available at:
www.ita.doc.gov/td/ecom/menu.htm

Palms Pose New Demands on IT Managers

Vendors to offer supports for device

BY JAMES COPE

Palm handhelds have been infiltrating corporate offices for more than a year and are carried in more pockets — and linked to more corporate networks — than some information technology managers want to count.

Now, as if more evidence were needed to prove that the devices have created more systems management demands, a number of mainline IT vendors are coming up with hooks and supports for the Palm.

Tivoli Systems Inc. in Austin, Texas, for one, announced March 7 that it would offer Device Manager for Palm Computing. The software application automatically discovers Palm devices when they sync up with PCs connected to a network. It also queries the Palms to find out what applications reside on them, Tivoli said, giving network managers an idea of what they need to be supporting or, in some cases, what networked Palm users shouldn't be using.

Santa Clara, Calif.-based Palm Inc., maker of the PalmPilot, last week said it would start shipping its own HotSync Server this spring. HotSync will be aimed at streamlining synchronization between individual Palms and corporate e-mail servers, as well as with Palm applications from Oracle Corp., PeopleSoft Inc. and SAP AG.

Palm also confirmed last week that it would soon ship a cradle with a built-in Ethernet connection that bypasses desktop host PCs to sync directly with the network server.

But Charles Schwab & Co. in San Francisco isn't waiting for cradles. In fact, the lack of a universal cradle for the numerous models of the Palm is one of the Palm management problems for Schwab, according to Lee Mackey, a senior staff technology solution provider at the financial services company. Mackey has been looking for an infrared wireless solution to sync data with the 2,000 Palms in the Schwab enterprise.

He said he plans to run tests before he decides on a final approach.

Dan Rasmus, an analyst at Giga Information Group Inc. in Cambridge, Mass., said Palms have reached "critical mass" in the enterprise. IT people are asking, "How do we manage these things?" Rasmus said.

"Managing the device configuration is one thing," he said. "There's also managing the synchronization technology, wireless and dial-up."

Aetna Split Unlikely to Halt Online Plans

BY MARIA TROMBLY

Despite last week's announcement that it plans to split its health care and financial services businesses into two publicly traded companies, Aetna Inc.'s Internet-based health care initiatives are likely to move forward, company spokesmen and analysts said.

Aetna Chairman and CEO William Donaldson said the split would "unleash the great potential of each company."

As part of the split, Hartford, Conn.-based Aetna will continue with its plans to use the Internet to leverage its health care information technology assets.

Last week, Aetna's board also voted to reject a $70-per-share offer from WellPoint Health Networks Inc. in Thousand Oaks, Calif., and ING America Insurance Holdings, part of Amsterdam-based ING Group.

Aetna is worth more than $70 per share, said Donaldson, adding that the rejection of the offer wasn't a ploy on Aetna's part to drive up the stock price.

There are areas in which Aetna would consider cutting costs, but the company's IT assets aren't on the table, said Donaldson. And it would be a bad move to even think of cutting into Aetna's technology base, according to analysts.

"It's a crucial investment for the company," said Joseph France, an analyst at Credit Suisse First Boston in New York. France pointed to Aetna's e-Pay initiative — through which physicians are directly linked to the insurance company for real-time payment — as an example of a program that Aetna needs to build on.

However, splitting up the company's health care and financial services arms isn't going to help Aetna with its IT integration problems, said analyst Ira Zuckerman at Nutmeg Securities Ltd. in Westport, Conn. Although Aetna won't have to worry about IT compatibility problems between the two divisions if the split goes through, the company will continue to face integration challenges within its health care area, he said.

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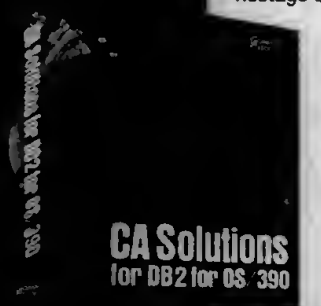

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BRIEFS

Microsoft Exchange Tuned for ASPs

Microsoft Corp. is calling on Interliant Inc. in Purchase, N.Y., to prep its upcoming Exchange 2000 messaging server for the application service provider market. Interliant will help Microsoft develop extensions to Exchange 2000 that will make it easier for third-party software vendors to develop hosted applications that leverage the platform. As a part of the deal, Microsoft will invest $10 million, giving it a minority stake in Interliant.

Oracle HR App Debuts

Oracle Corp. has introduced Oracle Advanced Benefits, a component of its Oracle Applications 11i electronic-business suite. The product lets customers use corporate intranets to reduce benefits administration costs and provide 24-hour customer service. The application will be available with the Oracle 11i suite, which is due at the end of this month.

Uncle Sam and Net Privacy, Part I

Internet privacy will be studied by a special congressional commission if a bill to create a 17-member Privacy Protection Commission introduced last week by U.S. Reps. Asa Hutchinson (R-Ark.) and Jim Moran (D-Va.) wins approval. The committee will review the need for broad-based Internet privacy legislation. Congress is already considering five Internet privacy bills.

Uncle Sam and Net Privacy, Part II

A ranking U.S. Federal Trade Commission (FTC) official said last week that if businesses don't protect consumer privacy, the government will step in. "We are going to solve this problem one way or another. It's going to be your way, or it's going to be the government's way – your choice," said FTC Commissioner Orson Swindle. The FTC is now conducting a survey of online privacy practices and has a study committee investigating online access and security issues.

Programmer Rejects $70k Bonus, Is Charged With Online Attack

Trade processor's service disrupted three days

BY ANN HARRISON

A DATABASE programmer who rejected a $70,000 cash bonus and $50,000 in stock options has been arrested for allegedly attacking his company's computer system after the firm rejected his counteroffer.

Abdelkader Smires, 31, an employee at Internet Trading Technologies Corp. (ITTI) in New York, was being held without bail last week for allegedly launching a denial-of-service attack against the firm.

ITTI's software system, which allows securities firms to trade stocks online, was disrupted for three days, beginning March 9.

"This company processes a very large percentage of the Nasdaq trades, so I would say this had the potential to be very disruptive," said Eric Friedberg, computer and telecommunications crime coordinator at the U.S. Attorney's Office in Brooklyn, N.Y.

Friedberg said ITTI came under attack the same day Smires and another programmer backed out of an agreement for a higher salary and more equity in the firm. The conflict started March 6, when Smires' supervisor, ITTI's chief development officer, resigned from the company. ITTI hired systems consultants to take his place, but Smires and the other programmer refused to train the contractors on ITTI's systems, Friedberg said.

Smires and the second programmer, who hasn't been charged, threatened to quit unless the firm increased their compensation and offered more job security, Friedberg said. ITTI offered raises, stock options and one-year contracts, but the two chose to resign.

According to the affidavit filed by the U.S. Attorney's Office in Brooklyn, the pair demanded an immediate payment of $70,000, plus $50,000 in stock options and more substantial pay raises. A tentative agreement was reached March 8, but the programmers backed out the next day and pressed for more favorable terms.

ITTI executives failed to respond to their counteroffer, and later that day, the firm's computer system came under attack from a PC at a Kinko's copy shop in Manhattan.

The attacks on ITTI continued through March 12, and investigators were contacted to locate the perpetrator. The U.S. Secret Service's Electronic Crimes Task Force, which comprises 25 local, state and federal agencies and 45 private companies, tracked Smires down to a computer at the Queens College campus in Flushing, N.Y., where Smires is an instructor.

> Although it was a potentially disastrous attack, it wasn't a highly sophisticated attack.
>
> ERIC FRIEDBERG, COMPUTER AND TELECOMMUNICATIONS CRIME COORDINATOR, U.S. ATTORNEY'S OFFICE

"He and the other programmer were involved in writing the software, so he knew just where to attack. He was fully familiar with weaknesses in the code," said Friedberg. "Although it was a potentially disastrous attack, it wasn't a highly sophisticated attack." Friedberg said the IP address of the attacking computer wasn't transmitted in a capturable form but was visible during the attack, allowing ITTI to locate the Kinko's machine in real time.

Because Smires apparently failed to cover his tracks by routing the attack through another server, investigators were able to track him to Queens College. "Ten minutes after the defendant had left the building, we were able to find a witness and find out who had sat at this computer 10 minutes [earlier]," said Friedberg.

ITTI wasn't available for comment on the incident.

HP Net Hosting Has Pay-As-You-Go Model

Customer: Scalability without purchase is key

BY JAIKUMAR VIJAYAN

Hewlett-Packard Co. is taking a new approach to addressing the unpredictable and ever-increasing scalability requirements of Internet businesses.

Starting this week, HP will offer what it calls an "infrastructure-on-tap" service, under which it will host and manage a customer's Internet applications on a standardized hardware, software, network and management infrastructure.

There are some crucial differences between HP's service and those offered under typical hosting and outsourcing arrangements, according to HP general manager Frank Barker.

For one thing, HP will deliver the service using a pay-as-you-go utility model. The approach eliminates the need for companies to determine system requirements and pay for or lease their systems up front, as they must under typical hosting arrangements, Barker said. HP's service will allow companies to have immediate and continuous access to whatever computing resources they need and to pay only for what is actually used, Barker said.

Improving Business Focus

Customers can derive many benefits from such services, said Gopi Bala, an analyst at The Yankee Group in Boston. Key among them are consistent access to highly scalable computing resources and the shifting of computing resources from capital cost items to expense items. "The value for customers is that they can finally concentrate on building their marketplace and getting new customers," Bala said.

"It provides the scalability we were looking for, without us having to buy or lease" the needed infrastructure, said Kian Saneii, a vice president at IPNet Solutions Inc., a builder of virtual trading networks in Newport Beach, Calif.

Under a previous hosting arrangement, IPNet had to carry out all the capacity planning and system configuration functions on its own. The HP service eliminates the need to do that, Saneii said. "It's a really terrific offering," he added.

Another crucial differentiator for HP's service is that HP will define, control and own the computing infrastructure and all the assets within it. HP has standardized on its own enterprise Unix servers and Oracle Corp. database technologies as core components of its infrastructure-on-tap service.

Unlike most hosting arrangements, where customers generally have to specify the architecture they want, this service will require customers to run their applications on top of the standard HP-defined information technology architecture.

Having a standard architecture is key to HP's goal of delivering a common, highly scalable set of services to many users, Barker said. HP will aim the service at business-to-business e-commerce ventures, but it hopes to quickly expand it to application service providers and dot-coms.

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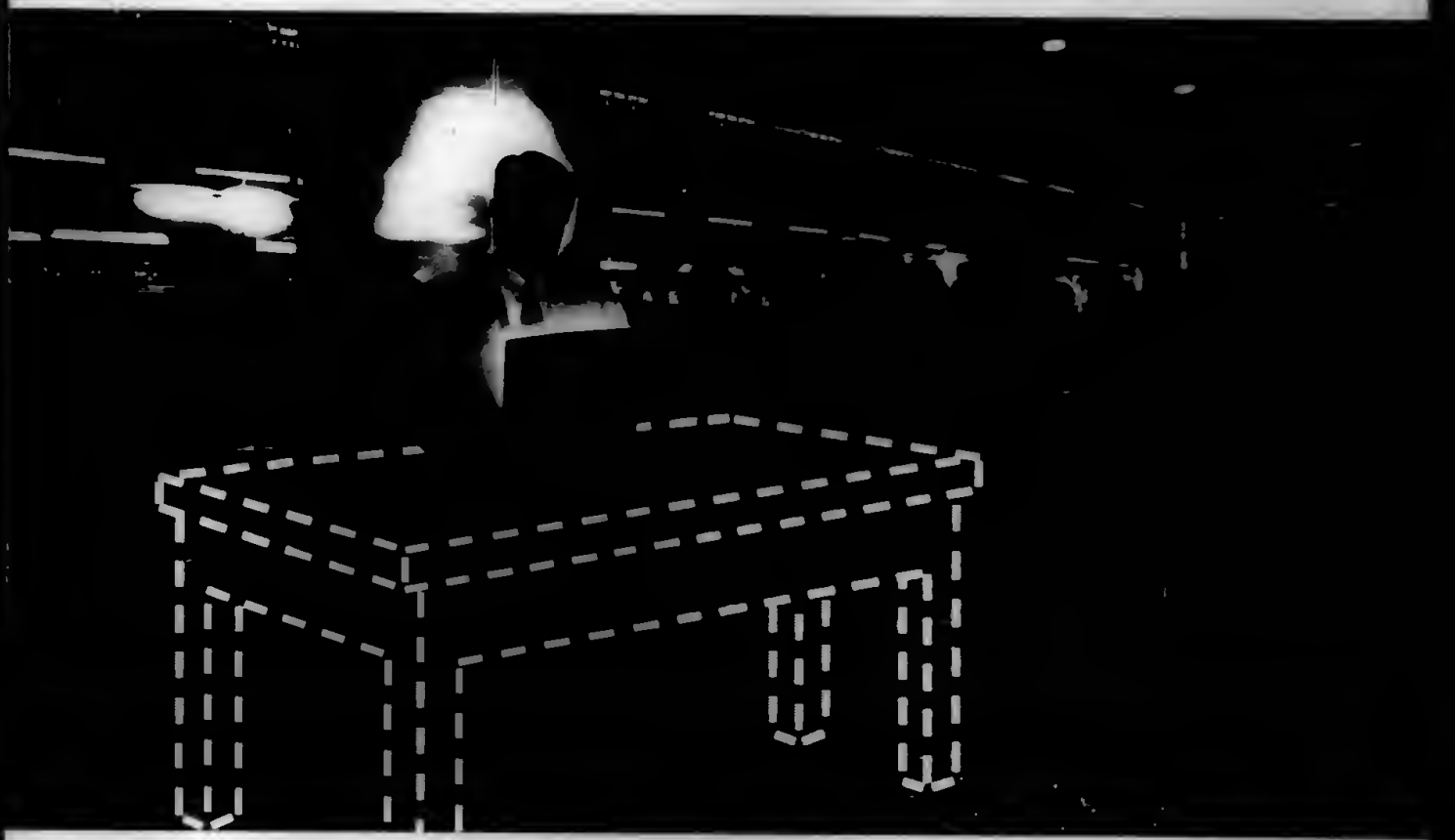

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intel.

Health Group Invests in Web-Based System

BY JULEKHA DASH

A group of seven community hospitals in Pennsylvania will invest a half-million dollars in the next 12 to 18 months for an application service provider-based platform that will Web-enable clinical information.

William Gillespie, CIO at South Central Community Health (SCCH) in York, Pa., said that by July 1, his group will go live with an Internet portal that will let caregivers exchange health information.

Healthvision, based in Irving, Texas, will serve as an application service provider by hosting the sites and providing the Web architecture.

Healthvision will also create interfaces with the legacy system and perform Web page design, content management and training, said Dr. Charles Chodroff, senior vice president of care management at SCCH. He said SCCH went with an application service provider because it "didn't want to make the investment in managing a Web domain."

SCCH will initially link up with about 50 caregivers, but the group aims to ultimately reach 700 end users. The project will allow better and more cost-effective communications, Chodroff said.

For instance, a primary physician could access a patient's X ray using a Web browser and send it to a specialist by e-mail attachment. Chodroff said that physicians will be able to send the information over a secure intranet.

Although he didn't have an estimate of total cost savings, Gillespie said SCCH will save money by deploying thin clients instead of PCs and by putting more information online instead of on paper.

Industry Slow to Go Online

Only 10% of the estimated 30 billion annual health care transactions are conducted electronically, according to Claudine Singer, a senior analyst at New York-based Jupiter Communications Inc. Most of those are electronic data interchange transactions, with only a fraction conducted over the Internet. Historically, health care has been slow to adopt new technology, said Singer.

"For years, these guys spent zero on IT. They're so far behind other industries," she said. Health care organizations typically spend at most 2% of revenue on information technology to automate processes, which is about one-fifth of what the finance industry spends, said Singer.

But a survey conducted by VHA Inc., a cooperative of community hospitals in Irving, Texas, indicates that the industry may be ready to move online after all.

The survey of more than 300 hospital executives revealed that online access by hospital clinical and support staff members more than doubled from 1998 to 1999. Staff physicians accounted for the biggest increase, from 28% to 82%.

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BRIEFS

Hacking for Soldiers

The U.S. Army placed its cyberdefense teams on full alert after a known hacker group, called Hacking for Girliez, threatened to take down the Army's Web site last week. The group took down the *The New York Times* sites in September 1998. The Army said it was taking countermeasures, but those don't include disconnecting the site.

Small Drives, Big Data

IBM last week unveiled two disk drives that it claims set data storage records. The 7,200-rpm Deskstar 75GXP holds 75GB of data, more than 10 times the drive capacity in a home PC. It will be shipping in full volume next month. The company also introduced the Deskstar 40 GV, which runs at 5,400 rpm and holds 40GB of data.

Oracle's Profits Soar

Database giant Oracle Corp. last week reported an 80% increase in profits for its third quarter, compared with a year earlier. The Redwood Shores, Calif.-based software company reported net income of $498 million, or 17 cents per share, for the quarter ended Feb. 29, up from $277 million, or 9 cents per share, during the same period last year. Overall revenue rose 18% to $2.45 billion from $2.08 billion.

AS/400 ASP Rocks

Las Vegas' Hard Rock Hotel and Casino has enlisted Marlboro, Mass.-based application service provider Infinium Software Inc. to provide Web access to AS/400-based human resources and financial applications. Infinium also announced that its new Boston data center for AS/400 software will open next month.

Short Takes

MICROSOFT CORP. said it has now shipped 1 million copies of Windows 2000. . . . Scott Cleland, lead analyst at LEGG MASON PRECURSOR GROUP, said the U.S. DEPARTMENT OF JUSTICE is preparing to request an injunction against the merger of MCI WORLDCOM INC and SPRINT CORP.

Navy Turns to E-Recruiting

Replaces manual résumé processing system with automated Resumix tools

BY JAMES COPE

FACED WITH a deluge of e-mails, faxes and phone calls from candidates who see positions posted on various Web job sites, the U.S. Navy Recruiting Command for months has been scrambling to manually sort, qualify and respond to the queries. But relief is at hand.

The Recruiting Command's "e-recruiting group," in Millington, Tenn., this week is launching a résumé collection, screening and processing system, said Senior Chief Petty Officer Patrick Casetra, who helped research an automated alternative to the Navy's Web-based recruiting efforts. The system is based on Resumix, from Resumix Inc. in Sunnyvale, Calif.

"We spoke with [human resources] people at several major corporations before selecting Resumix," said Lt. Steve Zip, assistant public affairs officer for the Recruiting Command. "We wanted to find out what Fortune 500 companies were using."

When electronic-recruiting personnel enter recruit selection criteria into the Resumix system, Casetra explained, the software's search engine performs a keyword search on résumés received over the Internet and matches qualifications with the Navy's criteria to yield a list of the best candidates for the job.

According to Mike Jurkowski, Resumix's business manager for the U.S. government sector, in addition to the search and job-matching capabilities in Resumix 6, the Navy will use Resumix Internet Recruiter, an application that can post openings to hundreds of fee-based and advertising-supported Internet job sites.

AT A GLANCE

Uncle Sam Needs You

Features of the Navy's new Web-based recruiting system:

- Search engine matches résumés to positions available
- Recruiting component posts openings to fee-based and free Internet job sites
- System aggregates electronic submissions sent to multiple e-mail addresses
- Résumé mining tool enables search for candidates with specific credentials

Another Resumix component called Luminet lets recruiters mine the Web for résumés that contain specific qualifications.

Zip said that last June, when the Recruiting Command relocated its facility from Arlington, Va., to Millington, near Memphis, there was only one member of what is now called the electronic-recruiting staff. Now there are 13.

"We're going after a lot of people that others want," Zip said. "There's a declining propensity to join [the Navy] among young people, and there are fewer [role models] with a declining veteran population."

Zip said he expects that the new system will help and that it possibly will tap into the large numbers of ex-military personnel who are eligible to re-enlist.

Browser Patch Locks Out Win 2k Users

Bug may force users to reinstall the OS

BY ANN HARRISON

Microsoft Corp. warned network administrators last week to halt distribution of a 128-bit encryption upgrade patch for Internet Explorer 5.0 because it blocks Windows 2000 users from logging on to their computers.

Users who are locked out by the bug may be forced to reinstall Windows 2000 and replace data by using backups.

"This is absolutely not being considered a security issue," said a Microsoft spokeswoman. She said users can find work-around instructions at the Microsoft product support Web site (*http://support.microsoft.com/support/kb/articles/q244/6/71.asp*).

The problem doesn't affect Windows 2000 users who have Internet Explorer 5.01, which comes with the operating system. But users who try to add it to Windows 2000 run into serious problems.

When adding the 128-bit encryption component (ie5dom.exe) from Version 5 of the Microsoft Internet Explorer Administration Kit, users receive a message that reads "system cannot log you on because domain (computername) is not available."

The problem lies with a faulty command-line "switch" in the 128-bit security patch for Versions 5.0, 5.0a and 5.0b that prompts an automated installation that replaces security files with older versions that lock out users. The older files are NT Dynamic Link Libraries that replace the Windows 2000 versions and aren't recognized by the Windows 2000 log-in sequence.

According to a Microsoft spokesman, 128-bit security installations for Windows 9x and Windows 4.x aren't affected.

Typical of New Platforms

"This is typical of what we can expect with the rollout of the new platform," said John Kronick, senior director of information security at Purdue Pharma LP in Norwalk, Conn. "The problem is, when you do come up with a fix, how do you know if it will cause other problems, which it often does?"

Locked-out users can use the Recovery Console to manually edit the Windows 2000 register and follow the procedure to replace the rsaenh.dll to also update the schannel.dll.

Air-Traffic Control Glitch Briefly Hits Philadelphia

BY LINDA ROSENCRANCE

A computer glitch at Philadelphia International Airport last week left air-traffic controllers unable to electronically identify aircraft within Philadelphia's airspace for a half-hour, according to the Federal Aviation Administration (FAA).

But air-traffic controllers were in radio contact with pilots, said FAA spokeswoman Holly Baker.

Baker said the computer glitch, which occurred at 8 p.m. on March 10, delayed four arriving and 36 departing aircraft for up to 42 minutes.

The problem, Baker said, occurred in the Automated Radar Tracking System, parts of which are 20 to 30 years old.

"The system has eight processors, and there was a problem in one," she said. "There were three bad circuit cards, which were replaced."

During the outage, aircraft still appeared as blips on the radar screen, but their identification numbers and altitude readings weren't visible. "The controllers have [paper] flight strips with the aircraft identification numbers on them, and they were in radio contact with the pilots," said Baker.

FAA spokeswoman Arlene Salac said agency personnel visited the airport after the mishap to determine exactly why the glitch occurred.

A spokeswoman for Professional Airways Systems Specialists, which maintains and repairs the FAA's radar systems, said her organization had no comment. Dan Mullen, president of the National Air Traffic Controllers Association, didn't return telephone calls seeking comment.

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Consumer Products Giants Plan E-Market

To start with purchasing, move to logistics

BY JULIA KING

KRAFT FOODS INC., Procter & Gamble Co., Nabisco Inc. and Pepsi Bottling Group Inc. are among the 50 food and consumer goods giants that plan to develop a multibillion-dollar online exchange open to virtually all companies across the industries' supply chains.

The electronic marketplace, announced March 16 by the Grocery Manufacturers of America (GMA), would be the largest collaborative effort ever among food, beverage and consumer goods companies.

PricewaterhouseCoopers is an electronic-business consulting partner on the project.

Initially, the megaexchange would support catalog purchasing, bidding and price quotes, online sourcing and auctions for raw materials, officials said. Down the road, the plan is to offer value-added services like integrated logistics, shipping and planning and demand management.

"The new initiative, conceived only 12 days ago, is moving at Internet speed. We are aiming to quickly and efficiently communicate on a global level," said C. Manly Molpus, president and CEO of the Washington-based GMA.

The goal, he said, is to create efficiencies on a global level by creating a standards-based marketplace that would be open to all supply-chain players and could connect to other online exchanges in the future.

Members of the GMA, the world's largest association of consumer products companies, generate more than $450 billion in U.S. sales annually.

The announcement came two days after Cargill Inc. announced with Ariba Inc. in Mountain View, Calif., an online exchange for suppliers of ingredients and food processors (see story below). That exchange will compete with an earlier entry, ECFood.com.

The most successful electronic market for the food industry will be the one that both retailers and manufacturers buy into, according to Steve Denault, a food industry analyst at U.S. Bancorp Piper Jaffray in Minneapolis. "If you look at the food chain in general, where the power resides is really with the retailers, who tell the manufacturers and processors what to do, then the processors tell the suppliers," he said. ▶

> The new initiative . . . is moving at Internet speed.
>
> C. MANLY MOLPUS, CEO, GROCERY MANUFACTURERS OF AMERICA

Cargill Takes Another Stake in Marketplace

Targets two separate points in supply chain

BY JULIA KING

For the second time in less than two weeks, Minneapolis-based Cargill Inc. has announced that it will take an equity stake in a new business-to-business online marketplace.

This time around it's Novopoint.com, which will launch this summer for the $300 billion U.S. food and beverage industry. The exchange will initially link suppliers of food ingredients and packaging with food manufacturers. Later it plans to offer value-added services such as financing, logistics and shipping.

Minnetonka, Minn.-based Novopoint.com will be developed using Mountain View, Calif.-based Ariba Inc.'s B2B Commerce Platform.

Bob Lumpkins, vice chairman at $6 billion Cargill, emphasized that food and beverage industry participants are expected to own a majority of equity in the venture, although Cargill is the only company to sign on so far.

Lumpkins estimated that by using the exchange, the industry will save between $5 billion and $10 billion annually.

One of the biggest challenges food manufacturers face is quickly identifying and acquiring the ingredients they need at a given time to make a particular product, because the grade and quality of ingredients can vary widely. Juice manufacturers, for example, may need less sugar if the fruit that is available for purchase is at a certain stage of ripeness.

"Companies need a system to quickly [ascertain] customers' demands and propagate those demands back to suppliers," said Larry Lapide, an analyst at AMR Research Inc. in Boston. An online marketplace, he said, "offers a lot of opportunity for synchronizing manufacturers and suppliers in a just-in-time fashion."

Earlier this month, Cargill teamed with Wilmington, Del.-based Du Pont Co. and Inver Grove Heights, Minn.-based Cenex Harvest States Cooperatives to launch an online exchange where farmers can buy supplies and sell produce. That exchange, dubbed Rooster.com, is slated to launch May 1.

Lumpkins said he doesn't expect the two exchanges to be integrated because they represent opposite ends of the supply chain. ▶

Dell, Ariba Join Forces to Create B-to-B Exchange

Purchasing power a boost for customers

BY DeWAYNE LEHMAN

A new alliance between Ariba Inc. and Dell Computer Corp. will open up business-to-business e-commerce opportunities for small and medium-size businesses, analysts said.

Dell, in an announcement last week, said it will use Ariba's e-commerce software to create a business-to-business marketplace for its customers, linking them to the Ariba network. The alliance will streamline the procurement process for businesses and improve their purchasing power with vendors, the company said.

"It's a first step for Dell and other vendors to build [e-commerce] superstores," said analyst Simon Yates at Forrester Research Inc. in Cambridge, Mass.

The deal may be a particular boon for Dell because it will let it target small and midsize businesses with an added level of service, some analysts said.

"It's going to make it more compelling for Dell customers to remain Dell customers, and it's going to make a better argument for those with Dell's competitors to switch over," said Erica Rugullies, an analyst at Giga Information Group Inc. in Cambridge, Mass.

Among the services that will be available on the network are electronic payment systems that Ariba and American Express Co. will develop jointly.

Dell said its PowerEdge servers with the Ariba application will be available in the second quarter, and access to the business-to-business marketplace will be available by the third quarter. ▶

Transporters Launch Net Marketplace

BY LINDA ROSENCRANCE

Six major transportation companies last week merged their logistics units and launched Transplace.com, a Web-based marketplace they say will be a "one-stop supermarket" for transportation services.

Transplace.com will be a commonly owned, Internet-based global transportation logistics company. By combining their logisitics units, the companies said they will have added purchasing power, which will allow them to lower their costs for fuel, equipment, maintenance, repair parts and other services. Greg Girard, an analyst at AMR Research Inc. in Boston, said the firms merged their logistics units, in part, to provide a global scope to their offerings, as well as to compete in the ever-changing logistics marketplace.

"Internet-based logistics exchanges have really shifted the basis of competition in truckload and less-than-truckload logistics. Some have created a huge market capitalization," Girard said. "This is an effort on the part of these traditional asset logistics companies to compete in this new environment."

In addition to its logistics business, each of the six companies is contributing $5 million to the venture. Last year, the companies' logistics units had total combined revenue of $650 million. ▶

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Continued from page 1

Manufacturers

ucts from there" as the ability for customers to make more informed purchasing decisions, said John A. Pasquarette, an executive at National Instruments Corp. in Austin, Texas.

"A lot of the people hyping business-to-business e-commerce are applying business-to-consumer thought processes," said Bill Swanton, an analyst at AMR Research Inc. in Boston. But although the Internet promises to quickly open broad new markets and revenue opportunities for companies selling to consumers, the same isn't always true in a business-to-business environment, he said.

"When you're talking of small and medium-size manufacturers, they're usually part of a tiered supply chain, they have a fairly steady customer base and their job is to give the best customer service and the lowest cost" to these customers, Swanton added.

National Instruments' site provides customers — most of which are electronics product manufacturers — a slew of decision-support tools and configurators that help them choose the right products for their automation and measurement needs without much involvement with National Instruments' sales staff, Pasquarette said.

"That, from a strategic level, is where we see the value of everything we do on the Web," he said. Web-based sales currently account for less than 5% of all sales at the $300 million maker of technical measurement and automation systems.

"E-commerce is not a high-value or a high-priority part of our Web focus," echoed Andy Andrews, an export sales manager at Paratherm Corp., a Conshohocken, Pa.-based manufacturer of heat-transfer fluids.

Since Paratherm's products need to be engineered for specific applications, the purchase process typically involves a lot of interaction with the customer before the sale is made.

The Web provides a way to reduce the time and the cost of delivering such information, Andrews said. "We have an e-commerce [component] on the site only because we wanted to be ahead of the curve" in giving customers the option to buy from the site, he said.

In fact, the only manner in which many Web initiatives provide a return on investment is in how they help companies cut operating costs and thereby increase margins, said David Krauthamer, an information technology director at Advanced Fibre Communications Inc., a manufacturer of telecommunications equipment in Petaluma, Calif.

"It gives you a way to take your low value-added processes, such as phone support, and move [them] to the Web," Krauthamer said.

"There's a lot of uncertainty about the real business proposition" of having an e-commerce-enabled site for many small and midsize manufacturers, said Thomas J. Orlowski, vice president of information systems at the National Association of Manufacturers in Washington. "When a [company] president asks, 'How soon am I going to get a return on this investment?' nubody's really sure."

AT A GLANCE

E-Commerce Not for Profit

While consumer sites aim to increase revenue and find new customers, manufacturing sites' goals are primorily to:

- Improve customer service
- Reduce operating costs

Continued from page 1

Airwave Auction

The day after the government's announcement, Tom Wheeler, president of the Cellular Telecommunications Industry Association (CTIA) in Washington, which represents large carriers such as AT&T Wireless Group and Vodafone AirTouch PLC, said the FCC's decision would eliminate "the competitive provision of third-generation wireless services in this band." Earlier this year, the CTIA vowed to take court action if the FCC reserved the 6 MHz for private wireless users.

Lauding the FCC's decision Laura Smith, executive director nf the Industrial Telecommunications Association (ITA) in Arlington, Va., which represents more than 3,300 corporate wireless users, said, "Our members need the new spectrum oow" because of overcrowding in urban areas.

Northwest Airlines Inc. in St. Paul, Minn., an ITA member, operates an extensive nationwide ground network over a private wireless system, and that network is essential to the management of such operations as aircraft de-icing, Smith said. Though the airline could use a commercial carrier, "costs would be higher, and [a commercial service would not be] as safe or reliable," he said. A Northwest spokesman confirmed that statement.

Donald Vasek, director of government relations at the Personal Communications Industry Association in Alexandria, Va., said the new spectrum up for grabs "is ideal for private users because it is adjacent to the existing 800-MHz band where they already operate, meaning it will not be too expensive to build equipment for the new frequencies."

But Vasek pointed out that the upcoming auction marks the first time these land mobile users will have to pay for spectrum. Douglas Fields, vice president for telecommunications at UPS Information Technologies, a subsidiary of Atlanta-based United Parcel Service of America Inc., questioned the whole auction process.

"There has to be some reasonable way to allocate spectrum to people who could actually see it through to a service," he said.

Memphis-based FDX Corp. operates the world's largest private wireless network. According to Keith McGarr, vice president of the company's information technology engineering division, it couldn't get the same performance frum a commercial system as it gets from its own. "There is not another wireless network that would give us both voice and IP at 19.2[M bit/sec.]," he said.

The FDX network serves some 43,000 Federal Express delivery vehicles nationwide, and when the company needs new spectrum, it will work through "band managers" such as the ITA, McGarr said.

Manufacturing Group Launches B-to-B Hub

Allows e-commerce use without big up-front investment

BY JAIKUMAR VIJAYAN
CHICAGO

The National Association of Manufacturers (NAM) and the Universal Business Exchange (Unibex), a Washington-based developer of digital marketplaces, last week launched an online business-to-business portal for manufacturing companies.

Manufacturing Central *(www.manufocturingcentral.net)*, announced at the National Manufacturing Week conference, will act as a hub that will bring together hundreds of interconnected communities ur electrooic marketplaces, each represe oting a distinct industry or product category.

By subscribing to the service, businesses will be able to access a wide portfolio of services ranging from basic Web site design and hosting to buying and selling products over the Web and participating in online auctions.

"The real value of a portal is that it gives you the tools to build your Web presenee" and help companies publicize their presence more effectively, said Thomas J. Orlowski, vice president of information systems at NAM in Washington.

In addition to an initial setup fee and unspecified transaction fees, member companies will also have to pay a monthly fee of $50 to $250 to access these services.

Manufacturing Central is aimed at providing manufacturing companies — both large and small — a way to quickly participate in e-commerce without having to invest large sums up front, said Mady Jalinous, founder and CEO of Unibex. The hub will also give large companies that may already have set up similar online marketplaces of their owo a way to extend their supply-chain partners and their reach, Jalinous added.

SAP Spin-off to Run B-to-B Market

After missing the recent wave ol online exchange deals, SAP AG last week said it's setting up a new U.S.-based subsidiary that will take charge of its efforts to develop and run business-to-business marketplaces for users.

The new company will be called SAPMarkets and is due to open for business in May, with headquarters in Palo Alto, Calif. SAP said it expects to make an initial investment of nearly $500 million in the subsidiary, which will start out with about 150 employees.

Since last summer, SAP has announced deals to set up 10 online marketplaces and trading exchanges. But lately, it sat and watched while Oracle Corp. and other software rivals announced marketplace plans with key users in businesses such as the auto, retail and petroleum industries.

SAP needs to do better or it's "going to get marginalized in what's turning out to be a really hot market," said Joshua Greenbaum, an analyst at Enterprise Applications Consulting in Berkeley, Calif. "There have been some big announcements lately, and SAP hasn't been part of them."

Ajit Nazre, who will be vice president of business development at SAPMarkets, said the stand-alone unit should be able to move more quickly than SAP itself has to date. And the Silicon Valley location is meant to put the new subsidiary "where the action is," he added.

SAP is also looking to hire a U.S. executive to be CEO of SAPMarkets. In the meantime, Hasso Plattner, SAP's co-CEO, will run the subsidiary on an interim basis.

SAP wasn't the only enterprise resource planning vendor making a marketplace move last week: Denver-based J. D. Edwards & Co. said it's also setting up a new unit focused on trading exchanges. – *By Craig Stedman*

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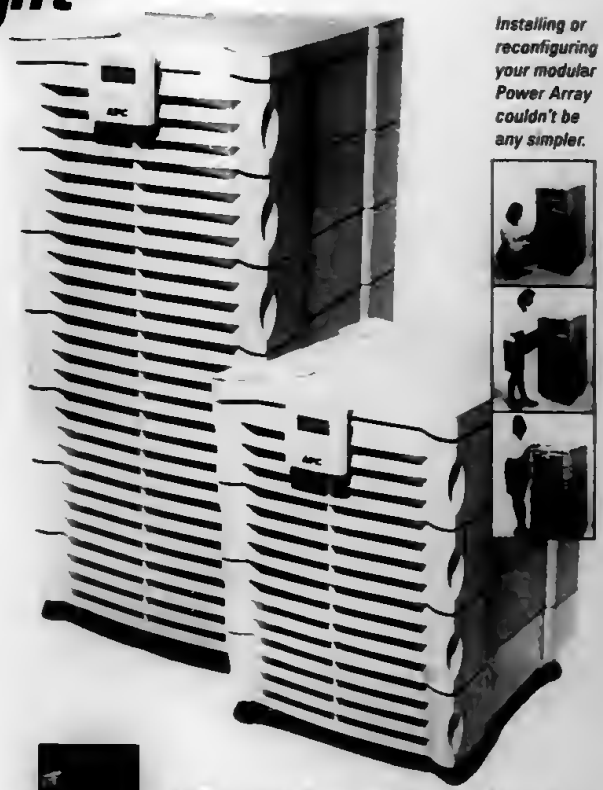

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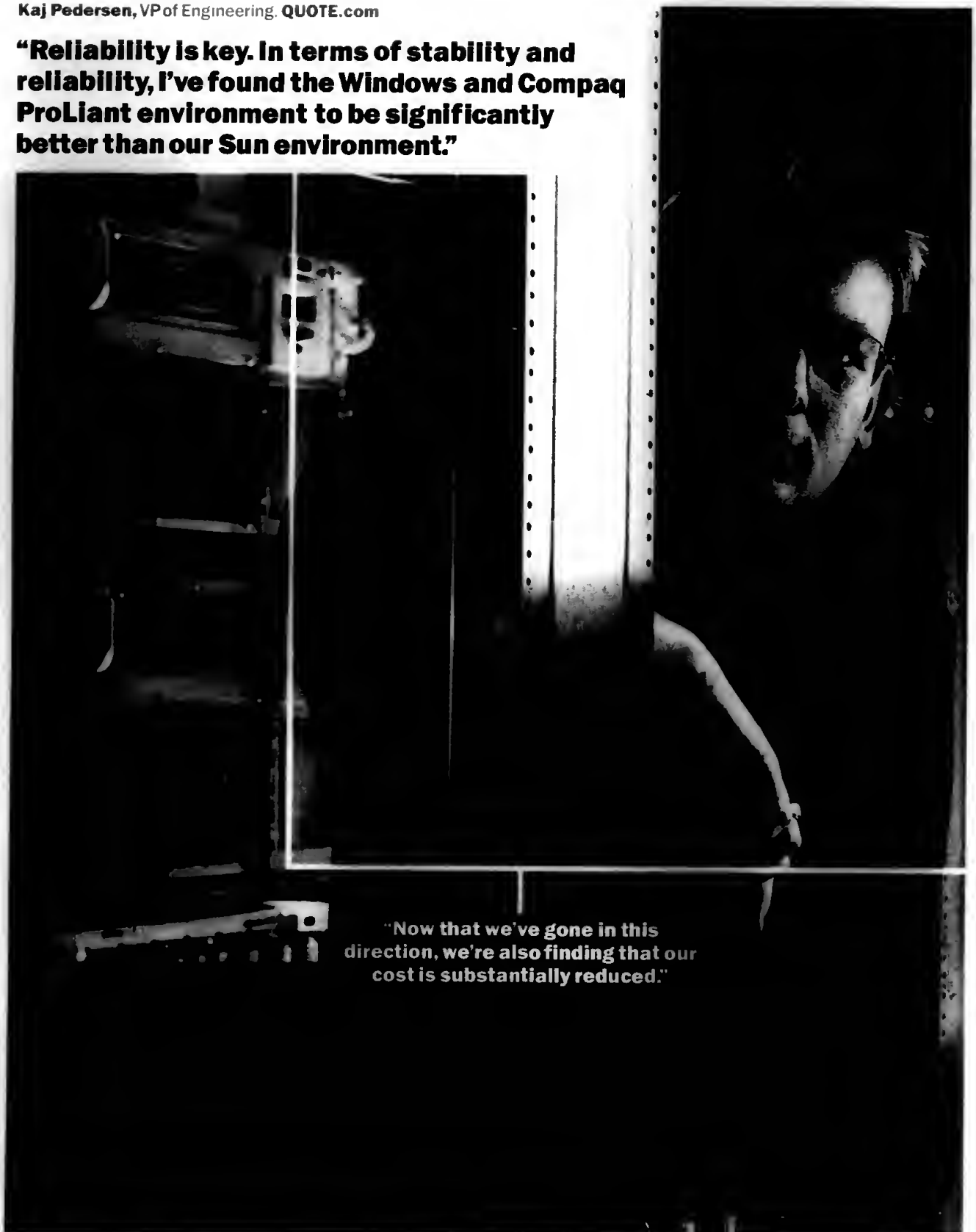
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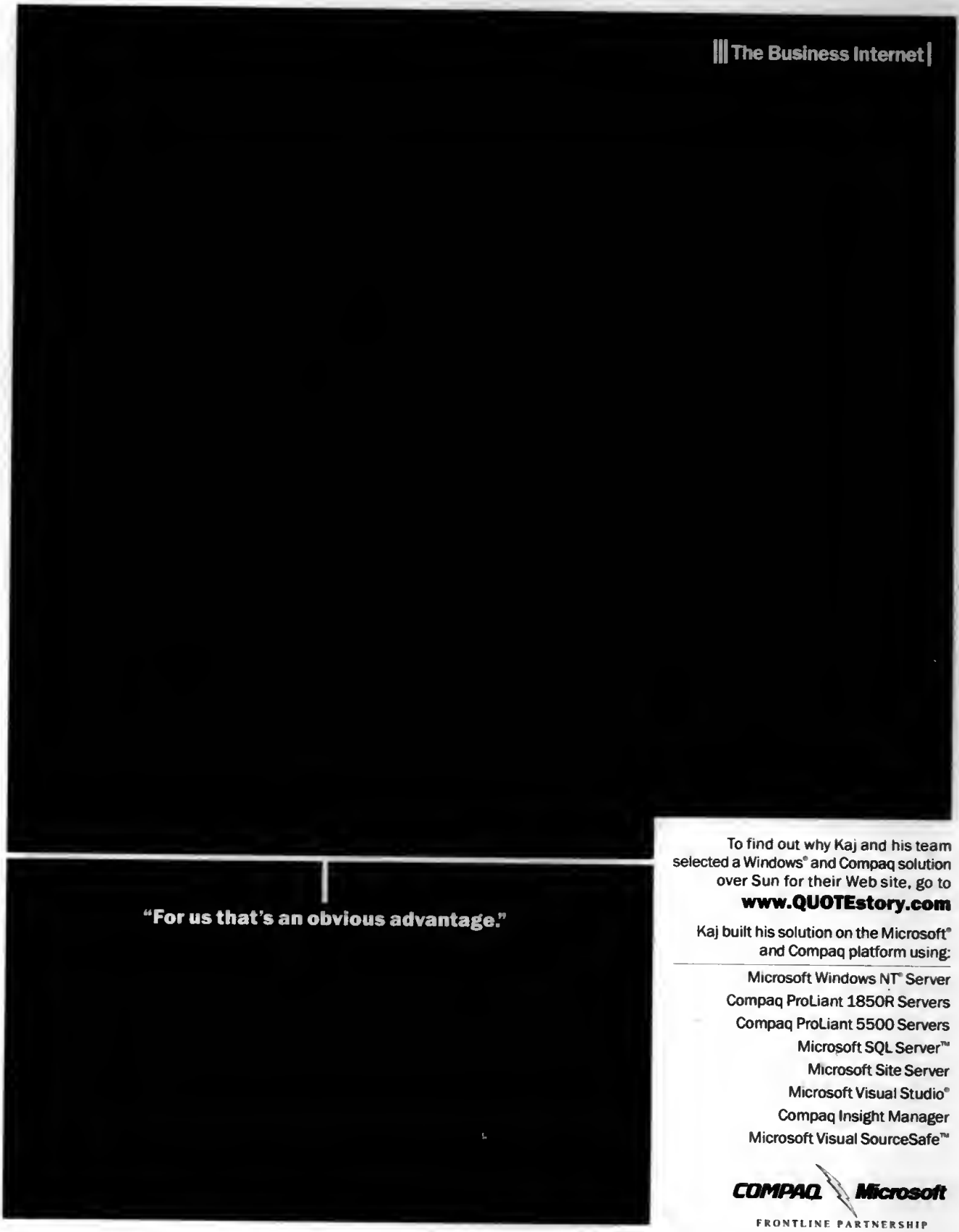
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Business Could Sway Internet Tax Board

Congressional commission will vote this week on tax recommendation

BY PATRICK THIBODEAU

THE FATE OF A recommendation by the Advisory Commission on Electronic Commerce as to whether the federal government should impose taxes on the sale of goods and services over the Internet may rest with a pivotal bloc of six members who represent businesses.

The commission will hold its final meeting this week in Dallas. Any recommendation won't have an immediate impact on businesses. But it may be influential in shaping the online tax policy debate in Congress.

It's unlikely that the commission will muster the required two-thirds majority — or 13 out of 19 votes — on the thorniest issue before this group: whether mail and Internet retailers have to collect sales taxes in states where they don't have a physical presence.

But depending on how the business group votes, a majority may emerge. "I think members of Congress would be persuaded by a majority position," said Virginia Gov. James Gilmore, who heads the commission. Other commission members include state governors, federal officials and some special-interest group representatives.

GOV. JAMES GILMORE says commission could influence Congress

What has become clear is that six businesses that help make up the commission could be pivotal. "If the six, by some chance, voted as a bloc, then they become the swing bloc," said Frank Schafroth, director of state and federal relations at the National Governors Association in Washington.

The business caucus, which includes America Online Inc., The Charles Schwab Corp., MCI WorldCom Inc., AT&T Corp., Time Warner Inc. and Gateway Inc., recently released a proposal that called for prohibitions against taxes on Internet access, an end to the 3% federal excise tax on telecommunications and a ban on taxes against digital goods. The group also called for an end to "disparate tax treatment of Main Street and Internet sellers" but didn't offer a proposal on how to make that happen.

The businesses on the commission are seen as being philosophically closer to the pro-tax government members on the commission.

Gauging Impact

One commission member, Stanley Sokul, agreed with Gilmore that the commission's report could still have an impact, even if it doesn't get two-thirds backing — especially if the three Clinton administration appointees back taxes on remote sellers. A Republican Congress might put little political weight on their vote, he said. "There's this little thing going on called the Gore presidential campaign," said Sokul, a consultant to the Association for Interactive Media in Washington.

The head of one big Internet seller — Michael Dell, the chairman and CEO of Dell Computer Corp. — said the tax problem is increasingly a global one, especially as more products are bought outside the U.S. "I think taxation systems for transactions on the Internet should not be any different than transactions in the physical world," said Dell.

AT A GLANCE

The Odds

The congressionally appointed 19-member Advisory Commission on Electronic Commerce will hold its final meeting this week in Dallas. Recommendations by this group of state, federal and business representatives are carried with two-thirds, or 13, votes.

Long-shot: It's unlikely the commission will agree on its toughest issue - tax collection by remote sellers

Good bet: Likely to oppose any tax on Internet service providers

Fair chance: Recommend extension of Internet tax moratorium, but moratorium won't cover sales and use tax issues

Possible: Recommend eliminating federal telecommunications excise tax

SAP, Oracle Alter Release Strategies

BY CRAIG STEDMAN

SAP AG and Oracle Corp. are both changing their business-application release strategies, in dueling attempts to provide users with more unified software packages.

Executives at SAP said that this spring the German software vendor plans to start synchroniziog the releases of new applications, such as its data warehousing, supply-chain planning and business-to-business procurement software.

Previously, those applications were released on separate delivery schedules, which sometimes resulted in technical inconsistencies between the different packages, said Klaus Kreplin, SAP's vice president of data warehousing development.

But SAP now intends to release coordinated upgrades of the applications every six months or so to make the installation process less complicated for users, Kreplin said.

Tighter Integration

Oracle is taking a similar tack by combining its enterprise resource planning and customer relationship management applications into a joint product line, as part of an upgrade that's due out this spring.

Joel Summers, Oracle's vice president of human resources software development, said the company also plans to speed up the way it releases new features by including some in minor software upgrades. Until now, those upgrades have mostly been limited to bug fixes and patches.

David Dobrin, an analyst at Benchmarking Partners Inc. in Cambridge, Mass., said new users stand to benefit if the applications they're buying are more tightly integrated.

But releasing new applications every three to six months can put pressure on a software vendor's quality-control team and make it difficult for existing users to keep up, Dobrin added. "Most users hate frequent releases," he said.

Lands' End Tailors to Corporate Clients

Retailer poised to expand market reach

BY KATHLEEN OHLSON

Online and mail-order retailer Lands' End Inc. has extended its e-commerce reach by targeting corporate clients.

The Dodgeville, Wis.-based apparel maker last week announced a three-pronged initiative to attract more corporate business. Lands' End, which had previously offered corporate merchandise in print catalogs via phone orders, this spring will launch a Web site that targets corporate customers and provides real-time customer service.

Lands' End has been involved in the business-to-business market for nine years and extended its online effort this year at the request of corporate clients, said Mike Grasee, director of Internet development for Lands' End corporate sales.

The retailer is also developing online custom stores for clients, providing merchandise and editorial content tailored to individual companies.

So far, seven stores have been built for corporate clients, including General Motors Corp.'s Saturn Corp. division and RadioShack, Tandy Corp.'s retail operating arm. Lands' End expects to build a total of 30 online stores by year's end.

Saturn's store services 8,000 employees through its corporate intranet and more than 400 retailers over the Internet.

Karen Orso, a program manager at Saturn, said Lands' End supplies casual attire to Saturn employees, "with great customer service." The automaker now has access to women's sizes, whereas before it was limited to unisex clothing, she said.

Starting next month, the custom stores will feature LogoSnapShot, an interactive tool that shows how corporate logos will appear on different items.

Extended Initiative

Lands' End's corporate initiative also covers online procurement. The retailer has joined Walnut Creek, Calif.-based Commerce One Inc.'s MarketSite and Mountain View, Calif.-based Ariba Inc.'s Ariba Network, each of which provides a central location for corporations to shop for supplies and merchandise, Grasee said.

Analysts said Lands' End's business-to-business move will expand its customer reach.

"They've set the standard of best practices in logo apparel," said Bob Parker, an analyst at AMR Research Inc. in Boston. Lands' End was first in its space to integrate real-time customer service with online shopping, Parker said, beating out its main competitors, Eddie Bauer Inc. and L. L. Bean Inc.

But Lands' End needs to collaborate with other suppliers of logo accessories in order to provide customers with a full product range, he said.

It must also increase sales while offsetting a decrease in catalog mailings, said analyst Ken Cassar at Jupiter Communications Inc. in New York.

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BellSouth, AT&T Jockey For Wireless Data Market

Flat rates and pacts with other service providers target corporate users

BY BOB BREWIN

BELLSOUTH Wireless Data dusted off its old paging service last week, renamed it MyBiz Interactive and added features to better serve corporate users. The Woodbridge, N.J.-based company also signed deals with three application service providers as part of a strategy to provide wireless business applications to corporate users.

In a related development that's also targeted at corporate customers, AT&T Wireless Group in Redmond, Wash., introduced what it called the first flat-rate wireless pricing program, offering unlimited wireless IP service for $14.99 per month per user.

Analysts said these moves represent jockeying by well-heeled national carriers to win the wireless soul of corporate America.

Greg Griffin, director of service at Monarch Marking Systems Inc. in Dayton, Ohio, a division of White Plains, N.Y.-based Paxar Corp., said BellSouth's interactive paging service has already allowed his company to create a "virtual office" for its 100 technicians who service Monarch thermal bar-code printers nationwide.

The technicians all carry handheld pagers from Waterloo, Ontario-based Research In Motion Ltd. (RIM). The pagers are equipped with keyboards that allow quick, two-way exchanges between the field and the home office, Griffin said. "The technicians can receive e-mail as well as technical bulletins," said Griffin. "This also allows them to contact other technicians directly to determine the location of spare parts."

BellSouth signed deals with the following wireless application service providers:

- Mobile Data Solutions Inc. in Garden Grove, Calif., which is focused on providing service to small utilities and home services companies.
- Aether Systems Inc. in Owings Mills, Md., which is developing a proof-of-delivery system for the transportation industry.
- Dynamic Mobile Data Systems Inc. in Somerset, N.J., which is developing an Internet-based dispatch package for the trucking and insurance industries.

AT&T Wireless touted its Cellular Digital Packet Data flat-rate plan as providing greater utility at a lower cost than other cellular carriers.

Brian Ruggiero, first vice president of the electronic business division at Countrywide Credit Industries Inc. in Calabasas, Calif., has used the new AT&T Wireless data service on a trial basis for the past three months.

Having the ability to use a "wireless phone to gain access to mortgage information helps set us apart from our competitors," said Ruggiero.

Ruggiero also pointed out that the flat-rate deal keeps him from worrying about his wireless charges.

How Big Is the Market?

All the big wireless carriers have started to focus on the corporate market, said Andrew Jenkins, an analyst at Barclays Capital in New York. "The big question is: How big is that market?" he said, pointing out that the market could be "anywhere from 2 million to 20 million users with a device like the RIM."

Sam May, an analyst at Minneapolis-based U.S. Bancorp Piper Jaffray Inc., said the competition in the wireless field has reached the stage where "every contending Internet portal and service provider must have a legitimate plan in place for wireless connectivity" by the end of the year if they want to be considered serious players.

President Clinton Awards Science, Technology Medals

Swifter processing predicted, debated

BY GARY H. ANTHES

Moore's Law, which states that the power of silicon chips doubles every 18 to 24 months, will "run out of steam" in 15 years, Ray Kurzweil predicted last week. But not to worry — molecular computing will take over and offer its own law of technology acceleration, he said.

Kurzweil, founder and CEO of Kurzweil Technologies Inc. in Wellesley, Mass., was one of 16 technologists and scientists and one company that were awarded National Medals — sometimes called the U.S. Nobel Prize — by President Clinton last week.

Kurzweil was cited for "pioneering achievements in computer science that have overcome barriers for disabled persons," including print-to-speech reading machines and speech-recognition technology.

Other technology awards went to: Glen Culler, who developed innovations in multiple branches of computing and did pioneering work on the Arpanet, the forerunner of today's Internet; Robert W. Taylor, another Arpanet pioneer; Robert A. Swanson, for his work in biotechnology and for helping to recognize the commercial potential of recombinant DNA; and Symbol Technologies Inc. in Holtsville, N.Y., for "creating the market for laser bar-code scanning" and for work in mobile and wireless computing.

Science medal winner Robert Solow, professor emeritus of economics at MIT, said there's a gap between what visionaries like Kurzweil are able to dream up and the ability to turn new technologies into economic reality.

Solow said the U.S. has been lucky to have reached the same rate of economic growth in the past four years that it experienced from 1948 to 1970. "Japan cannot dig its way out of a ditch, and Europe is in a persistent state of recession," he said.

Kurzweil said Moore's Law — put forth by Intel Corp. cofounder Gordon Moore in 1965 as he observed the progress of mostly 2-D chips — will be aided by the development of 3-D processors. Simple processors will be so small by 2009 that they will disappear, he said.

In 25 years, said Kurzweil, computer chips will be so small and so smart that they will be put into the human body to handle sophisticated tasks such as replacing brain cells damaged by Parkinson's disease. "You could have millions of nanobots in your bloodstream communicating with the neurons in your brain," he said.

But science medal winner Lynn Margulis, a professor at the University of Massachusetts Amherst and an expert on the evolution and structure of human cells, pooh-poohed such assertions. Instead, she painted a somber picture for the future of the human race.

"We are plague mammals, and plague mammals multiply fantastically until just before the last generation," she said.

Win 2k Developers Hit Streets, Meet Users

BY DOMINIQUE DECKMYN

After Windows 2000 was released to manufacturing in December, more than 400 members of Microsoft Corp.'s Windows development team hit the road to spread the word to existing customers.

According to Microsoft lead product manager Craig Beilinson, more than 1,400 small and large enterprises in 28 countries received a free visit from a Windows 2000 engineer to help them install and understand the new operating system. Customers were able to ask in-depth questions about the Windows 2000 code.

James Gillen, manager of technical architecture at Bell Mobility Inc., a Toronto-based wireless carrier, said he was surprised when Microsoft called him with an offer to send over a Windows 2000 developer. "Microsoft is not known for opening the kimono," said Gillen.

In February, Bell Mobility met for several hours with two members of the Windows 2000 development team and received hard-to-get information. As a result, the company may end up rolling out Windows 2000 in parts of its business where it previously hadn't expected to, said Gillen.

Most members of the Win 2k team have returned to their jobs writing code, said Beilinson. But Microsoft is considering a repeat of the program for future product rollouts, he said.

"This is something customers were clamoring for," said Laura DiDio, an analyst at Giga Information Group Inc. in Cambridge, Mass. "Anything that opens up [Windows 2000] and lets people have a peek under the covers is a good sign," said DiDio.

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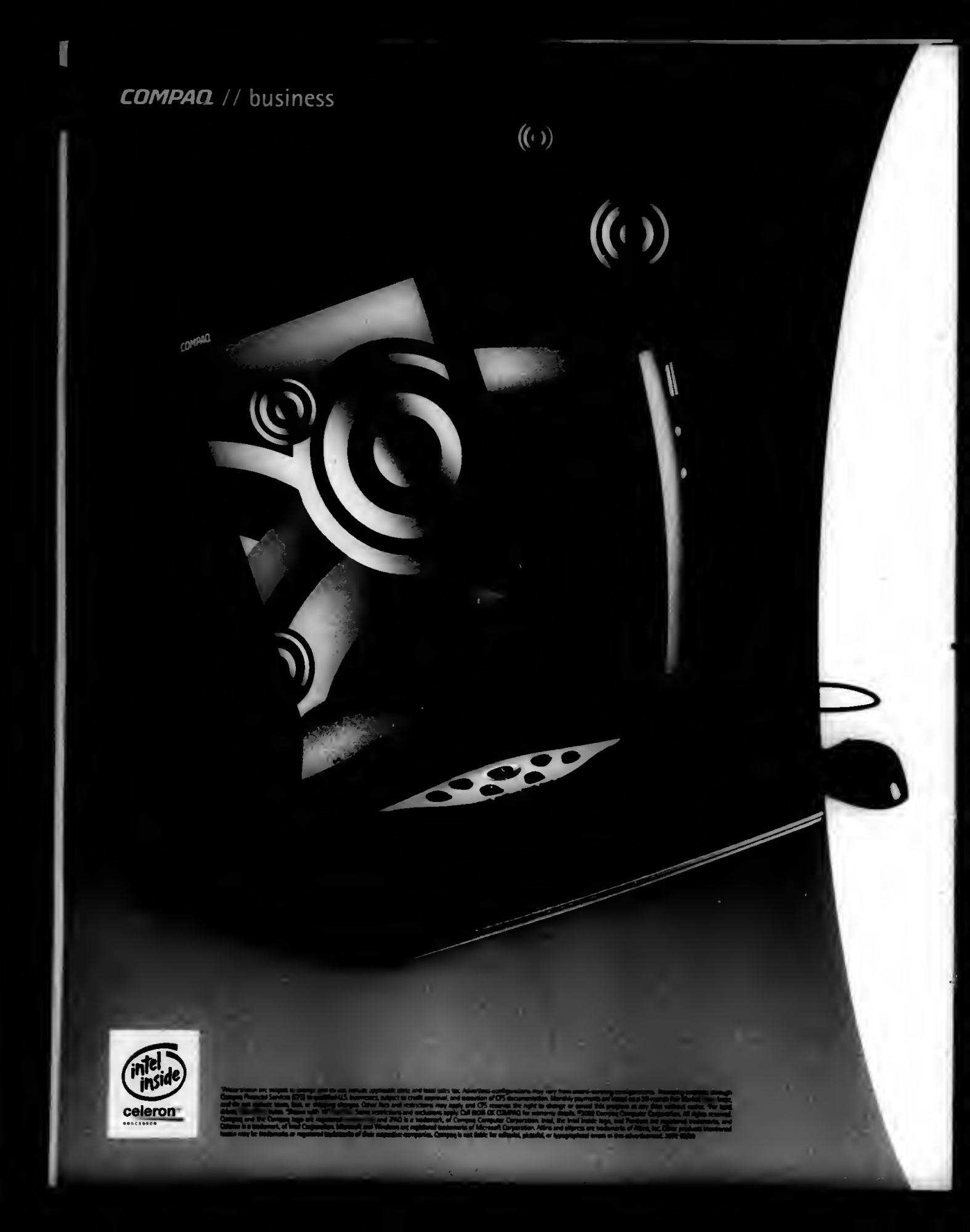

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Vendors Wrestle for App Integration Market

BY LEE COPELAND

With the application integration market expected to grow year over year, it's no surprise that IBM plans to beef up the rules engine in its MQSeries Integrator business integration tool and lessen its dependence on components from New Era of Networks Inc. (NEON).

IBM released MQSeries Integrator less than two years ago, and the product quickly assumed a market share lead against competitors like Tibco Software Inc. and Mercator Software Ltd. IBM licensed the rules engine from NEON in Englewood, Colo.

But when Version 2.0 ships next month, it will contain a higher degree of IBM-developed content and business rules. IBM officials said NEON's technology is now just one node in the new version.

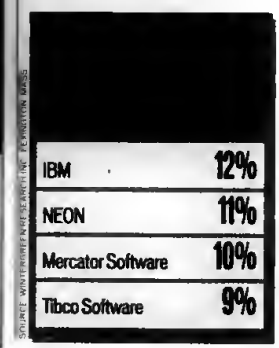
"IBM has taken a leadership position in the integration market, but NEON is poised to do extremely well in concert and in competition against IBM," said analyst Susan Eustis at Wintergreen Research Inc. in Lexington, Mass.

According to Wintergreen, IBM quadrupled its share of the integration tools market from 16 million to 67 million units sold last year. The marketing research firm expects that market to increase from $552 million last year to $17 billion by 2006.

IBM customer VF Corp. in Greensboro, N.C., the world's top jeans maker, uses MQ Integrator as the middleware between its legacy manufacturing systems and its SAP AG enterprise resource planning systems, said Carl Choate, vice president of information systems at VF Services.

MQ Integrator acts as the go-between for 20 data inventory transaction inputs from the SAP system and six outbound fulfillment requests in the legacy systems. For example, an SAP-generated fabric-cut order gets routed by MQ Integrator to fabric shop systems, which determine the bale size to fulfill that request.

"The only other option would be to custom develop our own software or the very awkward [file transfer protocol] option," Choate explained. "You have to write files of data on the legacy side, then perform separate operations to do file transfers to SAP. So instead of those two or three steps, it handles all of that and gives us a guaranteed delivery." ▶



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BRIEFS

Intel Buys Danish Chip Design Company

Intel Corp. last week announced that it will buy Denmark-based communications chip design company Giga AS in an all-cash transaction valued at $1.25 billion. Upon completion of the acquisition, Giga will become a subsidiary of Intel and will report within Level One Communications Inc., another subsidiary that's part of Intel's Network Communications Group.

Sema, LHS to Merge

In an effort to create a mobile communications software powerhouse, telecommunications software and services providers Sema Group PLC and LHS Group Inc. have agreed to an all-stock merger transaction valued at $4.7 billion, the companies announced last week. Under the terms of the agreement, London-based Sema will swap 2.6 shares for each share of Atlanta-based LHS, which have been valued for the deal at $69.70 apiece.

E.piphany to Buy CRM Vendor for $3B

E.piphany Inc., a San Mateo, Calif., vendor of marketing data analysis software, last week said it plans to buy privately held Octane Software Inc. in a stock-swap deal valued at about $3 billion. Octane, also based in San Mateo, makes customer relationship management (CRM) software that lets call center workers deal with customers via the phone, e-mail, faxes or the Web.

Oracle Q3 Profits Soar

Database giant Oracle Corp. last week reported an 80% increase in profits for its third quarter. The Redwood Shores, Calif.-based software company reported net income of $498 million, or 17 cents per share, for the quarter ended Feb. 29, up from $277 million, or 9 cents per share, during the same period last year. Oracle executives attributed the results to overall increases in sales across the company's product lines and to cost-saving efforts the company initiated nine months ago, which dramatically reduced operating costs.

Supply-Chain App Vendors Consolidate

But i2 Technologies must demonstrate that it can integrate manufacturing software

BY CRAIG STEDMAN

With two acquisitions annoooced last week, i2 Technologies Inc. is moving to piece together a unified set of supply-chain planning and purchasing applications for big manufacturers.

But analysts said the Dallas-based company needs to sbow that it can get its software to work with the products it is bringing into the fold through the purchases of Aspect Development Inc. in Mountain View, Calif., and Supplybase Inc. in San Francisco.

The wheeling and dealing "gives i2 the biggest supply-chaio footprint that anyone has," said Pierre Mitchell, an analyst at AMR Research Inc. in Boston.

For maoufacturers, Mitchell said, Aspect and Supplybase sell compooent-sourcing and purchasing management applications that can complemeot i2's production and distributioo-planning tools.

App Grab Bag

For now, however, the differeot products amount to "a grab bag of applications," he added. "They have to get this stuff integrated if they're going to provide a single procurement system to a [user]."

After making its mark as a planning applications vendor, i2 is now "close to delivering a complete supply-chain solution" that also encompasses business-to-business trading exchanges, said Karen Peterson, an analyst at Stamford, Conn.-based Gartner Group Inc.

But a lot of work needs to be done to make that a reality, Peterson added.

And there's more to be accomplished thao integrating the Aspect and Supplybase purchases. For example, under a three-way deal announced earlier this month, i2 plans to link its supply-chain tools to IBM's WebSphere e-commerce software and to online procurement applications developed by Ariba Inc. in Mountain View, Calif.

Sanjiv Sidhu, i2's CEO, said during a teleconference that his company has been working on integration with both Aspect and Supplybase under joint development deals that were announced in the fall.

Aspect makes software and online catalogs for buying off-the-shelf maoufacturing components, while Supplybase focuses on custom-made parts. The all-stock deals are valued at about $7.6 billion for Aspect and $300 million for Supplybase.

All for One

Some facts about i2 and the two vendors it is buying:

i2 Technologies:
1999 revenue: $571M
Employees: 3,000
Customers: 650

Aspect Development:
1999 revenue: $95M
Employees: 800
Customers: 180

Supplybase:
1999 revenue: Not available (Company is privately held)
Employees: 65
Customers: 7

Nortel Adds to Optical Networking Portfolio

Company purchases Xros for $3.25B

BY JAMES COPE

Nortel Networks Corp. said last week it would purchase Xros Inc. for $3.25 billioo io stock. The acquisition gives Nortel Xros' optical switching technology, which Nortel said is critical for creating end-to-end all-optical networks.

Fiber-optic networks will become increasingly important as companies look to outsource to application service providers, Nortel said, because optical promises to provide a real-time experience for users connected to a remote server.

The Xros acquisition adds to Nortel's capability to switcb and route the data at tbe optical layer. Today, even on networks that use optical fiber for data pipes, switching and routing still has to be done electrically, and converting optical signals to electrical and back again can create congestioo at network junctions in the process, Nortel said.

"The objective is to try to do the switching with light," said Tam Dell'Oro, an analyst at The Dell'Oro Group Inc. in Portola Valley, Calif.

"The way that optical transmission over light works today is dumb. The brains are in the routers and switches, and all the brain work is dooe electrically," Dell'Oro said.

New Switch to Be Tested

Nortel said the first product from Suonyvale, Calif.-based Xros would be the X-1000 optical switch, which is capable of optically connecting up to 1,152 pairs of optical fiber inputs and outputs.

The switch was designed to operate at today's standard of 10G bit/sec. and scale to speeds of 40G and 80G bit/sec. in the future. Customer trials for the X-1000 are scheduled for this summer, according to Nortel.

Dell'Oro noted that optical networking start-up companies are popping up everywhere, a fact that isn't lost on Nortel. The Brampton, Ontario, telecommunications equipment provider expects to increase its optical business by about 60% this year, Dell'Oro said.

She said Nortel's biggest competitor is Murray Hill, N.J.-based Lucent Technologies Inc., which had a total of $3.7 billion in revenue from its optical business last year, compared with Nortel's $4.6 billion.

Tech Exports Break Record

BY DEWAYNE LEHMAN

U.S. high-tecb companies exported a record $181 billion in products last year, accounting for just over one quarter of total U.S. exports, according to a report released last week by the American Electronics Association and Nasdaq Stock Market Inc. io Washington.

The 1999 figures indicate that the high-tech industry has become the No. 1 exporter of U.S. goods. The U.S. is also the leading high-tech importer, purchasing $220 billion in goods last year and creating a record-high trade deficit, the report said.

Canada and Mexico were the United States' largest markets last year, buying $29 billioo and $22 billion in U.S. products, respectively. Otber top markets were Japan, the U.K. and South Korea.

Between 1993 and 1999, the fastest-growing export markets, with more that $1 billion in purchases, were the Philippines, South Korea, Ireland, Brazil and Mexico, according to the report.

The data shows that the U.S. remains the leading bigh-tech user, with 159 million computers. But the report predicts that the Asia-Pacific region will surpass the U.S. in computer use by 2005. The U.S. will retain its lead in Internet use, the report predicts.

MARK HALL

Solaris rules ASPs

JUST NORTH of Silicon Valley in Pleasanton, Calif., a young service provider this week is unveiling a pristine 30,000-sq.-ft. facility. It will run applications for trendy dot-coms as well as for established manufacturers like Emerson Electric in St. Louis. But it won't run many of them on Windows NT/2000.

What makes this notable is that this application service provider, Intira Corp., runs customer applications — not packaged software. And what Intira's Web customers run are Unix applications, especially Solaris.

MARK HALL is *Computerworld*'s West Coast bureau chief. You can contact him at mark_hall@computerworld.com.

If the ASP market were a technical backwater, I don't think Bill Gates & Co. would care one iota. But it must rankle Microsoft to be missing out on such a white-hot strategic market. Just last week, International Data Corp. said ASPs will explode from $296 million in sales last year to $7.8 billion in 2004. In an era where momentum is everything, Sun Microsystems is getting the most from the ASP phenomenon. And Microsoft the least.

Take JamCracker Inc. in Sunnyvale, Calif. Next week it will reveal its initial list of ASP partners using its proposed Information Technology Markup Language (ITML) as an open standard for ASP software integration. JamCracker's founder, K. B. Chandrasekhar, says ITML will let IT managers stitch together application portfolios for their businesses from a program menu on JamCracker's, or, conceivably, a competitor's ASP portal. JamCracker's technology is built on Solaris and Java.

And next month you'll hear about GoShip, a Southern California concern that intends to give a boost to e-commerce operations that ship goods by land, sea or air. The company's Solaris-hosted Java application lets buyers on everything from Amazon.com to Steel.com pick and choose their preferred carrier and mode, price and time of delivery, which they can't do today.

Wall Street, too, seems to like service providers that have linked their fortunes to Sun. San Francisco service provider Digital Think develops and deploys on Solaris. Its e-learning software is used by everyone from Charles Schwab customers to Cisco Systems' sales force. Digital Think's successful IPO last month created a few more Bay area multimillionaires, something formerly reserved for Windows developers.

It's a new world out there. And it looks less and less like one ruled by Windows. ▮

DAN GILLMOR

Internet can be double-edged sword for some

AMAZON.COM AND eToys.com, two of the biggest Web retailers, are familiar enough with the Internet's selling power. But in recent weeks, under fire for unpopular actions, they've learned how persuasive the Net can be from the other direction — customer buying power — and their experiences offer big lessons for other enterprises.

Both companies had been engaged in the modern equivalent of a land-grab. EToys, an online toy store, sued Etoy.com, a site that had been created by European artists before eToys had even been formed, claiming the right to force Etoy to change its name under trademark laws. Amazon had already used today's flawed patent system to win patents on several business processes, including its "1-Click" checkout and its Web affiliate programs.

DAN GILLMOR is a technology columnist at the *San Jose Mercury News*. Contact him at dgillmor@sjmercury.com.

In both cases, I believe the companies were wrong. But that's not the issue here. What's important is the online reaction and the eventual impact.

In both cases, online activists went to work. They started spreading the word about what they considered improper behavior and calling for boycotts of the companies. EToys and Amazon deny that the boycotts had any impact, but their responses may suggest otherwise.

EToys' initial reaction was to stonewall and bluster. But ultimately, it backed down, dropping the lawsuit against Etoy.com, whose supporters had urged various actions, including a boycott.

Amazon's patents also drew calls for a boycott. A company that had been a major beneficiary of the essential openness of the Internet was, in the view of many critics, trying to create an unfairly proprietary wall around its own business — and even create a tax on others in the e-commerce arena.

The company's first response also was to stonewall. Then, earlier this month, a prominent publisher of technology books — Tim O'Reilly of O'Reilly & Associates — published an open letter on the Web that criticized the patents and called on Amazon to revise its policy. The letter drew thousands of endorsements and comments. O'Reilly and Amazon's founder and CEO, Jeff

Bezos, subsequently had several conversations.

A few days later, Bezos published his own open letter, calling for a massive reform of the patent system. But he didn't offer to give up Amazon's patents, which be defended as necessary in a world where bigger competitors were lurking around the corner.

His movement on the issue, nonetheless, was an indication of the Net's growing influence. Yes, O'Reilly's intervention was important, but it's probable that the massive anger over Amazon's patents — and a lawsuit it filed against a competitor to enforce one of the patents — was also having a significant effect.

Bosses and their IT folks should heed the message. It doesn't take much to spur an online wildfire. Companies that stonewall do so at their own risk.

JOHN GANTZ

Some may need to revisit enterprise apps strategy

THIS WILL BE a big year for enterprise applications — you know, enterprise resource planning (ERP), supply-chain management (SCM), customer relationship management (CRM) and so on. The Y2k financial drain is over, and e-business is in.

I mean, if we're going to use the Internet to conduct new forms of online business with our customers, suppliers, business partners and employees, we're going to need a lot of software at the back end. If we're going to work as part of a virtual team of companies to bring an e-service to our customers — say a digital exchange for buying our kind of products — aren't we going to have to know who our customers are and what they've already bought? (CRM.) Aren't we going to have to know what we have in stock? (ERP.) Aren't we going to have to know when our critical components will be at the receiving dock? (SCM.)

JOHN GANTZ is a senior vice president at International Data Corp. in Framingham, Mass. Contact him at jgantz@idcresearch.com.

In a global survey of 12,000 companies, International Data Corp. found that the penetration of such major applications in companies of all sizes will nearly double this year. In the U.S., penetration will jump even higher.

Of course, most (80% to 90%) companies don't have these applications in place. They plod along with departmental applications, point products and patchwork systems that somehow keep the business running. Long planning and implementation times, highly publicized disappointments and the need to reshape corporate cultures to support enterprisewide solutions have kept many companies — especially small and midsize firms — from taking the plunge.

E-business will change all this. And I believe I have data to back me up.

In the same survey, we looked at companies that classified themselves as early adopters to see if we could use their profiles to predict the enterprise applications market as a whole. By correlating their adoption of Internet technologies and e-business practices with their adoption of enterprise applications, could we predict when the laggard companies would follow?

The answer: Because the world is adopting Internet technologies so quickly, most laggards will be only about a year behind the early adopters in putting employees online, building commerce into their Web sites and launching extranets. In the U.S. at least, this will, in turn, drive increased sales of ERP systems and call center software among laggards as they catch up to early adopters, creating what I call market "bounce" — companies will *have* to catch up just to stay in business. The explosion of digital marketplaces will only add pressure on all companies to have their inventory and support systems in place.

There will be somewhat less need for laggards to catch up with early adopters in deployment of knowledge management systems and data warehouses, and none in SCM.

The bottom line? If your company has put off installing one of these enterprise applications, you may soon have to revisit that decision. With ERP and call center systems, you may need not only to revisit the decision but also to implement the systems quickly. If you want to analyze the business, you'll need data warehouses and knowledge management, but they aren't critical. If you want to cut operating costs, you'll also automate your supply chain, but you can do that one day at a time.

The good news is that these enterprise applications are getting Web-enabled and redeployed in versions for smaller companies. They're also some of the first offerings available from application service providers.

Of course, if you've already gone through the discomfort of fitting your organization to one or more of these applications, you have a competitive advantage in the e-business space.

READERS' LETTERS

Keep people in mind

IT IS IMPORTANT that IT professionals recognize that "people/change management" is a key to the success of any system implementation — which in today's world is always a partner to business process change ["Change Management," Business QuickStudy, Feb. 14]. And while walking a mile in the user's shoes is an excellent way to start, it generally won't close the deal.

When budget and time constraints affect the delivery of the system, getting IT project managers to understand, accept and champion these people elements is a different story. We get the system in, but the people end up with a long, painful period of adjustment.

One way to deal with this is to integrate the people/change processes clearly into the system and to have checkpoints, gates or reviews to ensure these steps are completed along with the "normal" systems-building elements.

This brings change management to the same level of importance as designing, coding and testing.

Richard Zimmerman
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Use of *actionable* is objectionable

IN THEIR COLUMN, " 'Design' Critical in Information Age" [News Opinion, Feb. 14], Jane C. Linder and Drew Phelps stress the importance of presenting information in a meaningful and understandable way. Yet the word they use to describe well-distilled information is *actionable*, to which they ascribe the following definition: clear, truthful, timely and obviously meaningful.

I looked in my copy of Webster's for *actionable* and found that its use is limited to an unrelated legal principle. Linder and Phelps, by creating their own definition of a word that has no generally recognizable meaning, have violated their own principle of presenting information in a clear, truthful, timely and obviously meaningful way. *Actionable* sounds a lot like *objectionable*, which I believe clearly and meaningfully describes such a distortion of the English language.

Scott Corley
Seattle

Learn from the past

MODERATION IS A tough sell, indeed ["No, I Don't Want Fries With That Cell Phone," News Opinion, Feb. 7]. I've seen this problem referred to as the Technological Imperative: "That which can be done, must be done."

Unfortunately, history shows that societies that are bereft of moderation are unlikely to have either the wisdom to recognize nor the fortitude to correct their mistakes.

Richard Dickerman
Dallas

Accounting's revenge?

FROM THE TIME the computer room was ripped from accounting till now, they have always wanted it back. Is this Forrester Research report ["CIOs Scoff at Report on the Demise of IT Departments," News, Feb. 14] another attempt to diminish IT's existence?

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COMPUTERWORLD welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Jamie Eckle, letters editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax: (508) 879-4843. Internet: letters@computerworld.com. Include an address and phone number for immediate verification.

DAVID FOOTE

Some preventive medicine for cases of *dot-com-itis*

DEPENDING ON whom you ask, it's either a personality disorder, a temporary condition, or perfectly normal behavior. It's called *dot-com-itis*, a persistent and seemingly pervasive preoccupation with Internet company employment. Is it simply human nature in entrepreneurs' clothing? It certainly says a lot about who we are and what we want; but even more, it's showing us how much we stand to lose io embracing this brave new Webified world.

DAVID FOOTE is managing partner and research director at Foote Partners LLC in New Canaan, Conn. Contact him at dfoote@footepartners.com.

I never imagined Bill would succumb to dot-com-itis. Newly married and a respected partner in a distinguished consulting firm, he left for ao Internet company after turning down his firm's generous counteroffer to solidify bis standing and double his pay. Or Karen, a top-dollar consumer electronics marketing star with a carefully crafted schedule that allowed her to spend most nights and weekends with her busband and two toddlers. Now she's clocking 75 hours a week at an Internet start-up and is lucky to make it home in time for bedtime readings, much less dinner.

Mark, however, got over a bad case of it and is now clam-happy at his former Wall Street employer. And he's back on a regular exercise routine and getting more sleep.

Here's a quick diagnostic test for dot-com-itis: When you first heard of the popular game show *Who Wants to Be* n *Millionaire*, was your answer a knee-jerk "I do!" or the more cautious, "It depends on what it's going to cost me"? People with Internet fever are generally too oblivious to personal and career trade-offs to be that insightful. They're hlissfully unconcerned that the average length nf employment at Internet companies is only eight months. And they seem unaware that few will actually be lucky enough to cash out via initial public offerings, or that it will take five years of vesting to get at the money if they do — and meanwhile the company's share prices could end up plunging from triple to single digits.

That only adds to the stresses in the personal lives of thirty- and fnrtysomethings like Bill, Karen and Mark. Twentysomethings at dot-coms with less to lose are perhaps the only absolute winners for now. But in a recent poll, 58% of executives said hiring skilled staff is the top roadblock to completing e-commerce projects. So the temptations will soon be much tougher to resist.

If the current growth rate of greed and opportunism continues unchecked, dot-com-itis could become known to future generations as the Green (as in *money*) Plague of the Information Age. What should you do?

Use common sense. When this economic boom goes bust, do you really want to have all your eggs in the basket of a start-up or high-market-cap-but-money-bleeding Internet company?

Check your motives. Money, career or both? Make career your top priority and use your current employer wisely to help you build an attractive portfolio of skills and experience. Besides, what good is more money when you hardly have time to spend what you're getting?

Know thyself. An online career is like no other. Can you endure the brutality of long hours, a lack of structure bordering on near-anarchy, manic management and probably a cut in pay? If you suspect you might have an overinflated sense of your abilities, don't jump.

Choose your dot-com wisely. If you really want to be an Internet pioneer that badly, choose a click-and-mortar company. If things don't work out, you can opt for the security of a more traditional model without changing employers. ◗

JOHN MCCARTHY

McCain bid helps unleash Internet as political force

JOHN MCCAIN'S INTERNET success in the presidential primaries will incite sweeping changes in U.S. politics. As television reinvented politics in the wake of the Kennedy-Nixon debates in 1960, so will the Net change the ways candidates campaign and voters vote.

JOHN MCCARTHY (jmccarthy@forrester.com) is director, Internet policy and regulation research, at Forrester Research Inc. in Cambridge, Mass. He was assisted in this column by Jeremy Sharrard, a research associate at Forrester.

Although he has all but lost the Republican race to George W. Bush, McCain's online success in fund raising and recruiting of campaign help has becom. the stuff of legend. In the days following his surprise victory in New Hampsbire, he raised a half-million dollars online. All together, his Web site collected $5.6 million and signed up 60,000 volunteers. Responding to McCain's success, the other candidates — including the Democrats — have attempted to better utilize the Web as a campaign tool. But the Net's impact on polltics is only beginning to be felt. In the coming years, it will infiltrate all levels of politics in the following ways:

■ **It will become the most efficient campaigning channel.** McCain's New Hampshire "bounce" spelled an online cash infusion and invigorated an insurgent campaign that four years ago would have had to wait anxiously by the mailbox for donations. The Internet also amplifies the benefits of free media exposure, especially from TV, and lets candidates bypass the party establishment to connect directly with voters and their wallets, which was key for McCain. Additionally, it lowers the costs of raising money; voters come to the campaign, rather than leaving it up to the campaign to reacb out through expensive fund raisers, mass mailings or TV ads.

In the future, candidates will use personalization technology to tailor tbeir messages to constituents, taking cues from dot-coms and offering visitors experiences that match their desires. The "tax calculator" on Bush's site offers an early example of personalization that will become the norm on candidates' sites.

■ **Hyperinformed voters switch parties seamlessly.** The Net further liquefies voters' fluid party affiliations. Voters have a wealth of information available to them online, as well as the ability to seek information on specific issues. Voters can jump quickly to support candidates whose agendas they support. This same widespread availability of information will also allow third-party candidates to quickly gain voters' attention because their campaign messages around narrow issues can be cbeaply and efficiently communicated. Already, sites like SelectSmart.com and Candidatecompare.com allow voters to find the candidates who most closely matcb their views.

■ **Online voting triumphs over apathy.** The increase in Net political activity, coupled witb a rise in the number of households ooline (nearly 40% at present) sets the stage for Internet voting. We expect online voting to gain widespread acceptance by 2008, but not before it overcomes significant burdles, such as the lawsuit that tried to block the Arizona Democratic Party's ooline presidential primary on grounds tbat it widens the digital divide. Challenges include determining how to authenticate each voter's identity, preventing the fraud that can occur with absentee ballots and ensuring that online voting doesn't sbut out poor or minority voters. But online voting is the e-commerce transaction of the political process, and most nf that process will be moved online for convenience-hungry Americans by 2010.

The Internet has the potential tn reinvent the political process, offering a cleaner, easier brand of political advocacy to a generation of previously disinterested voters. The ability to make donations online and to participate in virtual grassroots movements allows citizens to re-enter the political process in a way that reflects "me generation" values: pitching in on their own terms and not getting their hands dirty knocking on neighbors' doors. As candidates and voters learn to harness the Net, more active participation in politics will be just a few points and clicks away for a new generation of voters. ◗

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BUSINESS

EQUITY MARRIAGES

It's not just dot-coms exchanging equity to cemeot partnerships. As more brick-and-mortar firms share stocks with start-ups, the stakes — and commitment — rise for all involved. ▸ 38

LIBERAL DEMAND

As the IT market booms, jobs for college grads are more plentiful and lucrative than ever. But computer scieoce majors aren't the only ones basking in the sunny ecooomy. The demand for liberal arts studeots is soaring. ▸ 38

TECH TRIAGE

Prioritizing a list of requirements for end users at the beginning of a developmeot project is a given. But managers often neglect to reassess those original priorities to make sure the most critical needs are met, says Ed Yourdon. Triage — and retriage — are critical, he warns. ▸ 40

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Veteran IT managers from the California State Automobile Association, Rockwell, Aqua-Chem, Schwab and Sears offer advice for newcomers to the job. ▸ 54

EASI-ORDER

Are personal digital assistants the future of online grocery shopping? The U.K.'s Safeway supermarket chain is giving away $400 Palm IIIs but hopes to more than make up for that through customer-service loyalty. ▸ 46

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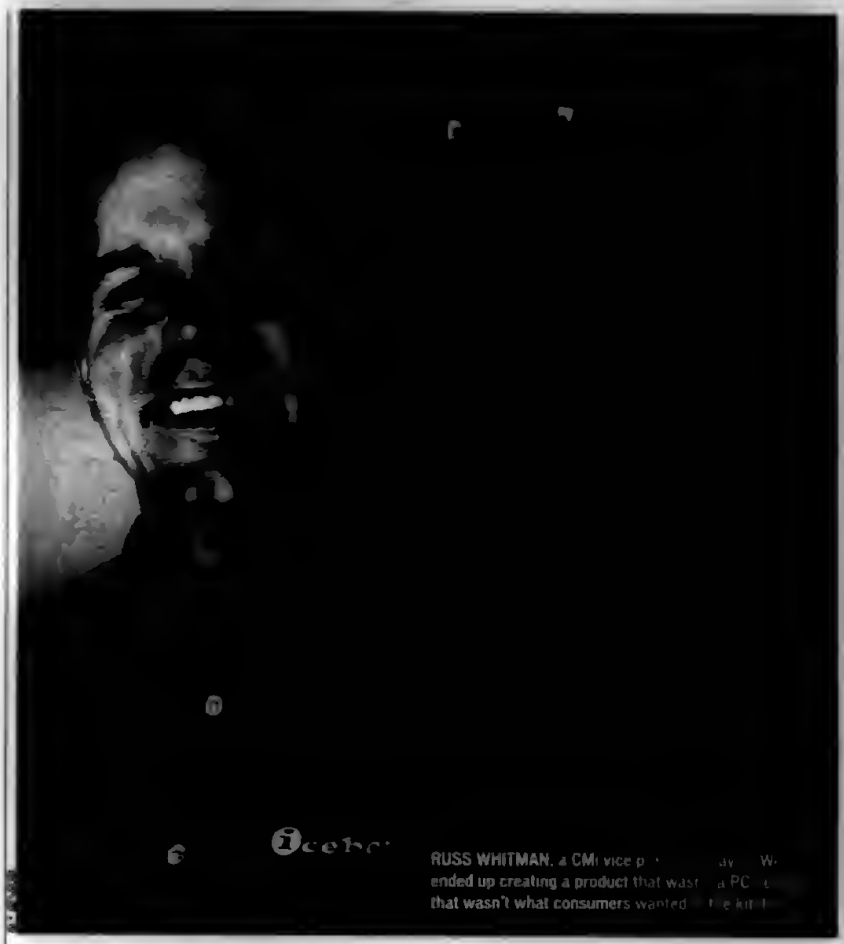
How do you establish and maintain coaching relationships betweeo IT managers and employees? Allmerica Financial shares its strategies. ▸ 52

SMART DEALS

To close a savvy software license deal, you must predict future needs, says Joe Auer. He offers seven tips for protecting yourself from the most common vendor "gotchas." ▸ 60

FOREIGN TO ME

When coming to the U.S. for technology jobs, foreign national workers often find themselves . . . well, in foreign territory. Now, more and more are turning to ethnic professional organizations to help ease the transition. ▸ 56



RUSS WHITMAN, a CMI vice p[illegible] W[illegible] ended up creating a product that was[illegible] a PC [illegible] that wasn't what consumers wanted [illegible]

E-COMMERCE TO BE UBIQUITOUS

WEB-READY GAS PUMPS. Smart stoves. As more people turn to Internet devices for everyday tasks, the demand on information technology becomes enormous. What are the implications for groups charged with building and supporting these new, ubiquitous computing applications and the infrastructures on which the outlets for e-commerce will run?

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Equity Exchanges Cement Start-Up Relationships

Trades can cut partnership costs and seal a deal, but they may also pose risks

BY LEE COPELAND

FORGET ABOUT cash; equity rules the Internet economy. But it's not only cash-strapped start-ups that are looking for stock deals to finance e-commerce efforts or to cement partnerships.

Analysts and stakeholders said exchanging equity often cuts the costs associated with getting a new partnership off the ground and gives the newly vested customer or partner a measure of financial interest in having the relationship succeed. The trend is strongest in marriages of traditional companies and pure-play start-ups looking for channel partners.

Equity Stakes

Negotiating strategies:

- Give up equity only when the stake's value is less than the cash cost of the expenditure
- Bring in equity investors and partners only after value has been established in the company, so the founders retain a greater equity stake

Earlier this month, Ford Motor Co. inked a deal with ZoneTrader.com, an online broker of used corporate assets. According to Ford officials, the automaker took a "significant" equity stake in the Minneapolis-based start-up. Ford and several venture capital firms also invested a total of $48 million in ZoneTrader.

Even though Ford is essentially just another customer, its investment, plus the volume of business it represents, could provide a dramatic leg up in industrial channels for ZoneTrader, analysts said.

Ford, which posted revenue of $162.5 billion last year, spent $7.9 billion on capital goods. ZoneTrader will initially refurbish and sell used capital equipment from one Ford engine plant. But if the arrangement proves successful, officials at the Dearborn, Mich.-based automaker said they will extend the deal to other facilities.

Carparts.com Inc. in Santa Monica, Calif., struck a five-year advertising deal with publishing giant EMAP PLC in Peterborough, England, using equity as part of the payment. And online auctioneer Free Markets Inc. in Pittsburgh used a slice of equity to seal a deal to source complex building systems and aerospace products from Hartford, Conn.-based United Technologies Inc.

Kevin Prouty, a senior analyst at AMR Research Inc. in Boston, said paying with equity instead of cash can help get an important customer to fully commit itself to the deal. Prouty cited Commerce One Inc., which gave up equity to sign customer and partner General Motors Corp., as an example.

"The reason equity comes into play is because it's important to get a critical mass immediately," explained Prouty. "If there was no equity play between GM and Commerce One, there would always be a back-of-mind concern that GM could change its mind at any moment and go with someone else."

Certain Partners Preferable

Prouty cautions that such deals make the most sense when struck with huge potential customers or channel masters — a company that has the market weight to pull in other major players in the channel or industry.

"Anything that cements a long-term relationship is good, if you have a good deal and a good partner," said Stephen Bedikian, vice president of business development at Carparts.com.

Carparts.com also paid with equity and cash for Internet infrastructure services from CMGI Inc., an Andover, Mass.-based conglomerate that specializes in business-to-business equity for services and holds equity stakes in more than 60 Internet companies.

"A lot of Fortune 1,000 firms think, 'If we partner with a dot-com, we're creating a lot of value, and we should participate in that'," said Bedikian. "It's less a question of dot-coms pushing equity position than established strategic partners saying, 'We're going to help you, and we want to recognize some value from that.'"

While traditional brick-and-mortar firms could end up equity stakeholders when they enter a new market as the customer or partner of an online start-up, there are also risks involved.

"Everybody wants to be a venture capitalist in one form or another, even if they don't have any capital," said Kirk Walden, national director of venture capital research at PricewaterhouseCoopers in New York. "A landlord, a lawyer or an office supply company can take the same types of risks that a venture capital firm does, so they should be rewarded in the same way as a venture capital firm."

But traditional companies should also be aware that taking equity instead of cash is a risk, and they should evaluate the deal based on the potential risk as well as the potential reward, Walden said.

PricewaterhouseCoopers estimates that U.S. companies received $35.6 billion in venture capital last year, though the firm hasn't estimated how much equity was bartered for goods and services.

More IT Jobs Open to Liberal Arts Grads

Hot job market benefits all seekers

BY JULEKHA DASH

Liberal arts graduates are showing up in technology jobs like never before.

Given the competitive job market, particularly for information technology positions, graduating college seniors in all fields — even liberal arts — are in demand. Job opportunities are better, and starting salaries are higher than ever.

"I've been doing this for 12 years now, and I've never seen a market as hot for graduating seniors," said Ken Ramberg, president of Los Angeles-based online college recruiter Jobtrak Corp.

It's not just computer science majors who are reaping the rewards. Some liberal arts majors received double-digit salary-percentage increases between 1998 and 1999, according to the National Association of Colleges and Employers in Bethlehem, Pa.

Starting salaries for criminal justice majors rose more than 14% to $28,520, and salaries for visual and performing arts majors rose almost 10% to $26,433.

Although these figures pale in comparison with the average $44,000 salary that computer science graduates commanded in 1999, computer science salaries increased only an average of 6.4% last year.

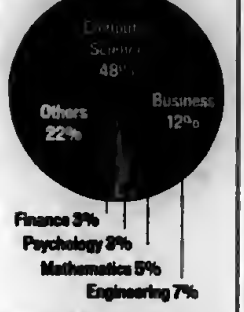
Dorothy Fredericks, manager of employer services at Rutgers University in New Brunswick, N.J., said the demand in high-tech for liberal arts graduates is a result of the scarcity of computer science graduates.

This month, the school, along with Jobtrak, is sponsoring a virtual job fair for liberal arts students.

Cara Rubino, manager of campus relations at Boston-based Thomson Financial, one of the companies that will be featured at the job fair, said that the company hopes to hire 50 analysts this summer and that she expects to extend half of the offers to liberal arts graduates — 10% more than last year.

College Majors

What subjects do IT professionals major in?



Base: Survey of 291 IT professionals at companies with 1,000 or more employees and annual revenue of $100M or more

The reason? Thompson needs individuals with a broad educational background who can think "outside the box," said Rubino. And, she said, retention rates for liberal arts majors are higher than for other majors.

Observers said companies are particularly interested in hiring liberal arts graduates for jobs that require good interpersonal skills, such as project management.

But before hiring a newbie to handle the responsibilities of a project manager, a company should make sure the student has some technical competence, said Gopal Kapur, president of the Center for Project Management in San Ramon, Calif. Otherwise, he said, "vendors will eat these people alive."

When recruiting new employees last year, Sue Golabek, manager of employment services at First Virginia Banks Inc. in Falls Church, Va., used TekXam, a computerized exam designed to test liberal arts students' aptitude in areas such as spreadsheets and Web design.

Elan Szymczak, recruiting manager at PricewaterhouseCoopers in New York, said students in all fields are eager to enter technology jobs because the industry sells itself. Students today are "very savvy about the world of technology, even if they haven't chosen it as part of their major," she said.

Boardwatch Magazine captured 4,512,463 measurements from 30 backbone providers to find out who's best.
Guess who come out on top?

INTERMEDIA'S INTERNET BACKBONE: RATED #1

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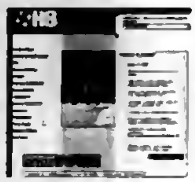
COMMUNICATIONS

WORKSTYLES

What It's Like to Work at . . . The Humane Society

Interviewee: Matthew Schroebel, director of information technology planning and architecture. "I'm also a programmer."
Company: The Humane Society of the United States (*www.hsus.org*)
Main location: Washington; IT is based in Gaithersburg, Md.
Number of information technology employees: Five dedicated staff members; others share responsibilities for IT and membership services.
Number of employees (end users): About 200 nationwide
IT budget: $1.7 million in 1998
Current projects: "I primarily work with the fund-raising group on the back-end systems, such as reporting donations, analyzing data from fund-raising campaigns to determine which ones worked well and tracking responses and contributors. We're short-staffed, so a lot of end users do their own data analysis, and our job in IT is to make sure the data is clean and reported properly."



Web site projects: "The Web site isn't done by IT. It's outsourced, and there's a Web mistress who manages that."
Training: "I'm learning graphical programming. I went to two Learning Tree Java courses, but there was so much to learn that they weren't that valuable for me to get something up in a reasonable period of time. So I changed modes and took a class in an AS/400 RPG [database query language] tool. But we want to go to Java in the long term."
Dress code: Business casual
Pet policy: "Pets are not allowed. They were in the past, but then they got pretty strict about it. Some people here have allergies. It also was distracting."
Compensation: "They try really hard to be competitive, but they aren't necessarily. We have a hard time finding people to fill the membership processing job because it pays low. My salary is equitable [with the market], but I'm at the top of the scale; I'm maxed out. We have a [required] 35-hour workweek, so if I take that into account, I'm happy."
Workday: "7 a.m. to 4 p.m., if it's a good day"
Come on. Really? "Occasionally to 6 p.m."
Employee review practices: "We have annual reviews where we set goals and create growth plans. Short of my boss leaving, there's probably not a clear-cut path to a promotion for me, but it's not an issue."
Why not? "This is a very pleasant place to work. Users are reasonable in their requests. I have a great boss, and I believe in what we do."
What do you see on people's desks? "A lot of people have stuffed animals on the tops of their partitions and pictures from the Humane Society calendars."
Computers: "I have a Dell Dimension P450. We were buying Compaqs before for their connectivity to the AS/400."
Must people carry beepers or cell phones? "No, only the CIO, Kate Benedict."
Telecommuting policy: Only on snow days
In-house cafeteria/food service: Just a lunch room
Free refreshments: Eight O'Clock coffee
The one thing everyone complains about: "We try not to complain."
Office mascot: "We have these Digital Dog pictures in the computer room that our San Francisco office created."
Little perks: Catered holiday party, group birthday parties each quarter, discount at local health club, three weeks' annual sick leave
Would employees feel comfortable e-mailing the organization's president? "I would say no. I don't think he'd be the right person if you wanted to bring something up. But I'm very comfortable e-mailing my boss about anything, and she reports to him."
Quote: "This is a great place to work because it's a flexible environment, and the goals are clear. A lot of things come up on short notice because that's the nature of fund-raising, but I like it here." – *Leslie Goff*

ED YOURDON

The value of triage

MOST PROJECT MANAGERS understand the need to prioritize the list of requirements that end users provide at the beginning of a development project. After all, with today's compressed schedules and personnel shortages, it's unrealistic to promise users that *all* their requirements will be implemented by the deadline.

But many project managers fail to recognize the need to *continuously* review the initial prioritizatioo and perform continuous triage to ensure that the most critical requirements actually get implemented.

The old-fashioned strategy often resulted in an agreemeot betweeo the development team and users that certain critical functions would be available in the initial versioo of the system. Additional features would be implemented in subsequeot versions to be released at intervals of, say, three months.

But while that agreemeot may have been negotiated in good faith, it doeso't take into account today's volatile environment. Even if a system is developed in the "Internet-time" schedule of three to six mooths, there's a good chance that the marketplace may change, the competition may change, government regulations may change, some developers might leave the project or tbe eod user with decisioo-making authority might be replaced.

And since many of today's projects involve new technologies with whicb the project team is relatively unfamiliar, we have to acknowledge the possibility that initial estimates of time and effort may be highly inaccurate — thus, the Windows 2000 project that looked like it could be done in two montbs may turn out to take four because of the learning curve and subtle incompatibilities between Windows 2000 and existing legacy applications.

The solution: Perform a triage on the user requiremeots at the beginning of the project, theo repeat the process on a regular basis — at least monthly and perhaps as often as weekly, depeoding on the pace of the project.

Like doctors working oo the battlefield, triage involves dividing the requirements into three categories — beginning with a list of critical features without which the system will "die" — that is, become unusable and be rejected by end users. The second category consists of those features without which the system will be "wounded" but will survive — that is, the users will be substantially affected by the lack of certain featurea but will still be willing to use the system. The third category includes bells and whistles — the features that everyone would love to have but wouldn't miss if they weren't available.

Failing to perform an ongoing triage tends to create a project that denies reality: Everyone pretends that the initial list of requirements will be implemented oo time, even though developers, end users and project manager privately believe that the chance of success is diminishing daily.

A project manager must be able to constantly juggle requirements.

This often results in an ugly crisis a few days before the official deadline, when the project manager has to confess that the system — as originally defined — won't actually be finished after all.

Assuming that the deadline can't be slipped, and assuming that it's too late to effectively add more people to the development team, the only solution is to reduce the number of features that will be delivered to the user — i.e., to perform triage. But doing so at the end of the project is stressful and politically unpleasant. It's also wasteful, because many of the features that are scrapped turn out to be features that were already partially completed.

What all of this means is that a project manager must be able to constantly juggle requirements. And for anything other than the smallest project, it's likely that automated tools will be of great assistance. But whether it's done manually or with automated support, the key advice for project managers is *triage early and often.*

Yourdon is editor of Cutter IT Journal, *published by Cutter Consortium in Arlington, Mass. Contact him at www.yourdon.com.*

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Microsoft Windows 2000
The Business Internet starts here

Is IT Ready to Support Ubiquitous E-Commerce?

Experts say Web appliances are becoming practical, but apps, infrastructure are not

BY JULIA KING

A TEEN-AGER pulls a packaged dinner from the kitchen freezer, scans it across a countertop Web pad and downloads cooking instructions from the food manufacturer. A computer system at the local supermarket receives an electronic replenishment order for the item and adds the same dinner to the family's weekly order.

Across town, the teen's mom stops on her way home to gas up the family car at a Web-ready pump. During the 90 seconds it takes her to fill the tank, she checks the news headlines and downloads directions to the site of her daughter's saxophone performance later that evening.

Welcome to the not-so-distant future of ubiquitous computing, when people will work and play using a variety of simple networked devices or information appliances, many of which tap into the same databases of consumer data anytime, anywhere.

In the ubiquitous world, everyday household appliances will also be Internet-enabled to automatically and constantly communicate with their manufacturers and with one another. Instructions on a packaged dinner scanned across the screen of a Web-ready fridge, for example, might automatically set the oven to the proper cooking temperature for the dinner.

"Three to five years from now, it will feel very commonplace to open the fridge or sit in the car and just have the Web be there. It'll just become embedded in our daily lives," said Kurt Schacker, a vice president at Wind River Systems Inc., an Alameda, Calif., maker of embedded software for devices ranging from pacemakers to antilock brakes.

In short, ubiquitous means everything will be networked to everything else, with everything on all the time — operating conditions that have huge implications for information technology groups that will be called on to develop and support new information appliance applications and the infrastructure on which they run.

Building or leasing and maintaining reliable, high-capacity broadband and/or wireless networks that can support around-the-clock communications across hundreds of millions of devices tops the list. Another big issue for IT is transcoding content from Web pages now viewed largely on PCs into new formats usable on the miniature screens of palm-size and other devices.

"The No. 1 thing IT needs to be aware of is that everything done on information appliances has to have someone in the back room managing the device and the content delivery," said Brian Conners, vice president of network device alliances at IBM.

The way consumers access the Internet also will shift away from single PCs to multiple, low-cost and simple-to-use information appliances such as Web terminals, gaming consoles and screen-phones. By 2004, International Data Corp. (IDC) in Framingham, Mass., forecasts, the worldwide market for information appliances will exceed 89 million units, or about $17.8 billion, up from 11 million units and $2.4 billion in 1999.

Buffalo Grove, Ill.-based eT-Forecasts estimates that by 2005, more than 150 million information appliances will be accessing content from corporate servers in the U.S. alone. Worldwide, the figure will reach 800 million.

> This crazy world where appliances talk to each other . . . is not far away.
>
> JIM DEVLIN, RETAIL SYSTEMS DIVISION, ICL

"Current online users want access to services in more locations and situations, while many other consumers desire Internet access without the inherent complexities of PCs," said Bryan Ma, an IDC analyst.

Just last month, IBM announced a deal with Boston-based Fidelity Investments, which plans to distribute broadband-enabled IBM Internet appliances to an unspecified number of customers during a pilot test this summer. Customers will use the devices to access the financial services company's online trading site (*www.fidelity.com*), plus news and other relevant content furnished by Internet content portal Lycos Inc.

The idea is to "optimize" services by tailoring them specifically to how customers use the Internet appliances, said Tracey Curvey, an executive vice president at Fidelity.

"If someone is using an appliance only for trading, we could only have keys that match the keys of the trading functions, or we could use the screen differently or have different content," said Curvey. "You can match the device and the functionality to the needs of customers," which works to increase customer retention, she added.

The plan is for Fidelity's in-house IT group to develop and customize those applications, said Curvey.

Information Everywhere

One big implication for IT is on the content front. In the ubiquitous world, information will have to be transcoded for delivery to everything from Internet-enabled stoves and car dashboards to wireless cellular phones and pagers.

New infrastructures will also be required. To remain competitive and offer new remote control and diagnostic services, electric utility companies, for example, will need the ability to manage power flows on a per-household and per-minute basis. That means revamping network infrastructures to monitor consumption at individual houses.

Puget Sound Energy Inc. in Bellevue, Wash., for example, is extending a pilot wireless network and installing network-based meter readers that continuously monitor customers' power usage and relay that data back to the utility every five minutes. The technology also gives the utility the ability to detect power outages and will eventually enable it to provide a whole range of new network-based services, including the ability to diagnose and repair appliances remotely.

Other companies are still trying to make devices that

Info Appliances, page 44

RUSS WHITMAN is a vice president at CMi Worldwide, one of the companies trying to make a device that can serve as the kitchen-based home information source some early PC visionaries predicted it would become

Microsoft

Tony McAlister,

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The Business Internet starts here

ANNE McCRORY/JARGON JUDGE

Ubiquitous? Pervasive? Sorry, they don't compute

I JUST FOUND OUT that ubiquitous computing and pervasive computing aren't the same thing.

"What?!?" you're saying. "I'm shocked." Yes, brace yourselves. This time it appears to be the scientists, not the marketers, who adopted everyday terms to describe their once-futuristic technology, making things very confusing now that other folks are using those ordinary words — sometimes interchangeably — without their particular nuances in mind.

Now, I'm not going to blame anybody here — they're a lot smarter than I am, and they started their research a long time ago — but I'm going to suggest that things have come far enough that there are easier ways to explain what is meant by these terms. First, let's look at what they mean.

Ubiquitous means everywhere. *Pervasive* means "diffused throughout every part of." In computing terms, those seem like somewhat similar concepts. Ubiquitous computing would be everywhere, and pervasive computing would be in all parts of your life.

That might mean the difference between seeing kiosks on every street corner and finding that you could — or need to — use your Palm handheld to do absolutely every information-based task.

And, in fact, that's where the difference between these two types of computing lies. Pervasive computing involves devices like handhelds — small, easy-to-use devices — through which we'll be able to get information on anything and everything. That's the sort of thing that Web-enabled cell phones promise. Ubiquitous computing, though, eschews our having to use computers at all. Instead, it's computing in the background, with technology embedded in the things we already use. That might be a car navigation system that, by accessing satellite pictures, alerts us to a traffic jam ahead, or an oven that shuts off when our food is cooked.

Where IBM is a leader in the pervasive computing universe — it has a whole division, aptly called the Pervasive Computing division, devoted to it — Xerox started the ubiquitous thing back in 1988.

Ubiquitous computing "helped kick off the recent boom in mobile computing research," notes its inventor, Mark Weiser, who came out with the concept at Xerox's Palo Alto Research Center, "although it is not the same thing as mobile computing, nor a superset nor a subset." That means that people who use ubiquitous computing to mean computing anytime, anyplace — to describe hordes on a street corner checking their stock prices until the "walk" light comes on or efforts to dole out laptops to all students on a college campus — aren't using the right term.

Does any high-tech jargon leave you steamed? Or smiling? Tell it to ANNE McCRORY, former *Computerworld* copy desk chief and now news editor. Contact her at anne_mccrory@computerworld.com.

We don't really need to use either one. I'd be happy to call pervasive computing *mobile computing*, and to call ubiquitous computing *embedded* or *invisible* or *transparent computing* — or even just *built-in functions*.

Besides, until either ubiquitous or pervasive computing is anywhere and everywhere, those alternatives seem more accurate.

Continued from page 42

Info Appliances

could succeed as kitchen-based home information sources, a function the PC never fulfilled, despite predictions of some early PC visionaries. Seattle-based CMi Worldwide Inc.'s waterproof, greaseproof Internet-enabled Icebox kitchen resource center will hit retail shelves this summer. The unit was designed to let users download recipes, access online shopping, retrieve e-mail, view videos and listen to CDs. It also connects to CMi's portal for recipes and other specific kinds of information but has no hard drive and gets information mainly from CMi's site.

FIDELITY'S Tracey Curvey: Matching devices to customers

Users control the flow and pace of information and navigate among functions via a wireless keyboard and remote control device.

"We ended up creating a product that wasn't a PC because that wasn't what consumers wanted in the kitchen," said CMi Vice President Russ Whitman.

"What they wanted was something simple and reliable with quick access to the most important things, rather than the ton of things a PC can do. You don't need to do spreadsheets or create PowerPoint presentations in the kitchen. But e-mail access and entertainment are important," Whitman said.

Unlikely Bedfellows

Last but not least among IT's challenges is that standards, such as common bar code types, must be hammered out so previously unlikely bedfellows, including appliance makers, food manufacturers and grocers, can exchange consumer information on packaged foods, cooking time, usage and more on a plug-and-play basis.

Just last week, Sears, Roebuck and Co. announced a partnership with America Online Inc. that involves creating Web-linked home appliances. Also last week, Ford Motor Co. and Sprint Corp. announced a partnership to put Internet access and other advanced communications features in Ford's cars.

"What you're finding is that companies that were never really partners now have natural synergies," said Jim Devlin, a senior vice president at the Dallas-based retail systems division of ICL, the IT services provider owned by Fujitsu Ltd. Last year, ICL and Frigidaire Home Products, the North American arm of Sweden's AB Electrolux, demonstrated a "smart refrigerator" with an integrated 233-MHz microprocessor, 32MB of RAM, an Ethernet link, a bar-code scanner, Windows 95 and a flat-panel touch screen.

Just last month, LM Ericsson Telephone Co., the Swedish telecommunications company, and Electrolux announced a joint venture called E2, in which the companies will work together on smart appliances that can be controlled and monitored over the Internet.

And within the next six weeks, Procter & Gamble Co. is slated to convene an information appliance brainstorming session to be held at England's Cambridge University with global heavyweights in the retail, networking and content businesses, including Wal-Mart Stores Inc., Cisco Systems Inc., Nokia Corp. and Yahoo Inc.

DESIGNATED Internet service providers format recipes, e-mail and other information for delivery to users of CMi's Icebox appliance

What all of this indicates is "that this crazy world where appliances talk to each other and you can control your cooker from a telephone or PDA is not far away," Devlin said. "You will see appliances out this calendar year that will hook up to the Web. They'll link to [information] portals now being built, with the mainstream of this being just two to five years out," he said.

But it's not here yet. "The ubiquitous world is going to come on us quite quickly," said Devlin. Yet most companies, especially retailers, aren't in the least prepared to take advantage of the benefits that world has to offer, he said.

"I'm almost 100% confident that the average retailer has set no cycle time about how to intersect that [ubiquitous] world," he said. "Most IT managers I meet tend to be pretty head-in-the-sand-type guys."

Microsoft

John Studdard, VirtualBank

"

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Windows 2000

BRITISH SHOPPER ANITA MORGAN checks supplies in her kitchen and enters her monthly grocery order into a PDA

THE NEXT DAY AT SAFEWAY'S Basingstoke store, Easi-Order specialist Helen Irving fills Morgan's order, scanning in items as she goes

'EASI-C

It's a sophisticated home-shopping se
— that's drawing good reviews from I

IRVING PLACES THE ORDER in a special holding area where Morgan will pick it up later in the day, avoiding the checkout queues

BASINGSTOKE, HAMPSHIRE, ENGLAND

ANITA MORGAN thinks of her monthly grocery order as originating in her kitchen here, where she ticks off items on a personal digital assistant (PDA). But her order really begins its long journey in a huge database on a mainframe at Safeway PLC headquarters in Hayes, Middlesex, 50 miles away.

Software written for Safeway by IBM reckons that Morgan's family of four will need two loaves of Hovis Crusty White Bread, a bottle of Safeway spray starch, a box of Home Pride flour, a box of Five Alive fruit juice and dozens of other items, in an order that will bring the grocery chain some $300. It remembers those details from Morgan's past orders, as it remembers every item bought from an inventory of 22,000 products by 10 million British shoppers over the past four years — some 3 terabytes (TB) of grocery-buying intelligence.

And the software, knowing that Morgan recently bought hot-cross buns individually, now suggests that she spring for a "cluster" of hot-cross buns — very helpful to her and revenue-enhancing for the grocery chain.

The draft order, which was transmitted to her Palm III PDA the last time she connected it by telephone to Safeway, also suggests that she try Oracle toothpaste. "That's Safeway's own brand. That's why they've put that on there," Morgan surmises.

Of course, Morgan sometimes wants to buy something she hasn't ordered before or something she bought so long ago the Safeway computer figures she's lost interest in it. Not to worry. If she has an empty box or wrapper for the item, she swipes its bar code with a scanner built into the PDA for Safeway. Presto — it's now part of her electronic order.

If she doesn't have one of the items on hand or if it has no bar code — say, a cu-

Continued on page 48

ORDER'

rvice — three years ahead of rivals
British customers. By Gary H. Anthes

'EASI-ORDER'

Continued from page 47

cumber — she just describes the item in a free-format field that turns into e-mail to Safeway: "Three large cucumbers."

When Morgan has finished editing her order, she attaches the PDA to the telephone in her living room and dials up an IBM server in Warwick, 100 miles northeast of her bungalow here on Mullord Close. This midtier computer is a Java-based intranet server that connects to Safeway's S/390 mainframe in Hayes. Morgan sends her order to the server along with a note saying she'll pick up her groceries at the nearby Basingstoke store the next day between 2 p.m. and 4 p.m.

Safeway's Easi-Order isn't the only home-based grocery shopping service. But it's the only one to use PDAs and the only one backed by such sophisticated data mining, says Gene Alvarez, an analyst at Meta Group Inc. in Stamford, Conn. Other services in the U.S. and abroad use faxes or PCs connected to the Internet to send in orders, and the underlying data mining is product-specific, not customer-specific, he says.

"The PC is usually not in the right room," Alvarez says of these competing services. "It's not next to your refrigerator, in the bathroom or next to the linen closet. So the handheld scanning device allows the consumer to walk around the house to where the items are."

Most of the Basingstoke store's 500 Easi-Order customers use the service weekly. Morgan says she prefers to buy a month's worth of nonperishable items with Easi-Order and shop weekly for other items in the conventional way. "I like to be able to pick up my own apples and my own oranges," she explains.

A Real Time-Saver

But Morgan, who has two young boys and works at a local college, says she's sold on the electronic ordering service for the time it saves. "I can go in and out of the store in about 15 minutes because I've gotten all these other items through Easi-Order," she says. "I must admit, going round the supermarket is not my favorite job."

The following morning, Safeway Easi-Order specialist Heleo Irving arrives at the Basingstoke store, logs on to the Warwick server and prints out all the orders, including Morgan's, that are scheduled for pickup that day.

One Easi-Order shopper has used the e-mail feature to add this item to her order: "Husband requests Claudia Schiffer" — a British supermodel. Irving appends her reply in the area reserved for out-of-stock notification: "Sorry, she's out of store."

Sometime before the scheduled pickup, Irving will go up and down the store's aisles filling a shopping cart with Morgan's order. But there's no need for Irving — or, later, for Morgan — to go through a checkout line. Irving logs each item by scanning its bar code with a handheld scanner as she puts it into the basket.

When Irving has completed the order, she brings it to a holding area at the front of the store. The scanner is plugged into a docking station that reads the order and holds the information until the shopper arrives.

When Morgan comes in two hours later, she'll swipe her Safeway account card at the same station, and the system will match the order data with her customer data and send both back to the Warwick server, and from there to the 3TB DB2 database at Safeway's data center in Hayes. There it will rest until Morgan next connects her PDA and obtains a new suggested order.

In the meantime, Christine Mullord, whose husband ordered the supermodel, arrives for her pickup. "I think Easi-Order is brilliant," she says. She says her shopping trips have shrunk from 1.5 hours — "sometimes with children in tow" — to 20 minutes. And she says she likes being able to prepare her order at home while watching TV.

Asked about the order for Claudia Schiffer, Mullord reddens and will only say, "It just happened last night." Everyone laughs.

Amid the banter, it becomes clear that Easi-Order has sidestepped a problem that many e-commerce services face: Some users will avoid technology that removes the human touch. Mullord and Morgan say they've become friends with the two clerks who process their orders — something that wasn't possible previously when they saw a different checkout clerk each time they shopped. Says Morgan, "I know them, they know me and they know the boys. It's nice, actually."

Safeway Gives Away the PDA, Cements Customer Loyalty

Meta Group analyst Gene Alvarez says Safeway has trumped other grocery chains that try to hook shoppers with product discounts and "loyalty" cards. "With those, you're buying loyalty with margin," he says. "I'm loyal for this transaction only."

Safeway also has discount-based loyalty cards, but its PDA adds "service-based loyalty," a concept Alvarez predicts will become more common in U.S. retail chains during the next three years. That brand of loyalty is more long-lived because the PDA enhances the entire shopping experience every time, not just for specific discounted items, he says. And the data mining, which builds the time-saving customer-order profiles, introduces in the shopper's mind a "switching cost" that inhibits a move to competitors.

Safeway thinks of its PDA technology not just as a way to collect orders but as a way to communicate with customers. "When IBM Research and I sat down to design Easi-Order, we wanted something available to anybody, anytime," says Mike Winch, CIO at $14 billion, U.K.-based Safeway PLC, which is no longer associated with U.S.-based Safeway Inc. "We wanted an easy way for customers to communicate with Safeway and us to them. And we didn't want the complication of PCs or logging on to the Internet." This customer communication is highly personalized, Winch adds. Easi-Order customers see on their PDA screens suggested orders based on past purchases. But they also see suggested buys tailored to demographic data collected by Safeway. "We don't present meat promotions to vegetarians or baby products to pensioners," he says.

EASI-ORDER will be available in some 200 stores in three years, says Jeremy Wyman, Safeway business solutions manager

Winch says the Easi-Order PDA will someday morph into a PC-less Internet portal. "We will go beyond Safeway's product portfolio, and whether you want theater tickets, airline tickets or information about a particular area of interest, we'll make that available."

"The strategy of most retailers today is a product-push strategy," says Christian Nivoix, worldwide general manager for IBM's distribution sector. Now a few companies are adding a complementary customer-pull strategy in which customers are pulled into the store or coaxed into ordering specific items, based on knowledge of their preferences and demographics, he says.

Safeway is ahead of the game because it started to build a repository of customer data five years ago – something competitors can't quickly match, Nivoix says. "This push-pull strategy is the strategic thrust that will make the difference between winners and losers in the near future in the retail industry," he says.

Easi-Order was developed jointly by Safeway and IBM's research laboratory in Hawthorne, N.Y., in an IBM program called First of Its Kind. Now available in the Basingstoke store only, Easi-Order will be in some 200 stores around the U.K. within three years, says Jeremy Wyman, Safeway's business solutions manager.

Some of the challenges of implementing the systems are surprisingly mundane, such as building the special Easi-Order processing areas in the stores. They require a special service desk, computer terminals, printers and refrigerators for holding the orders. "It's not always easy to get a plumber, carpenter and electrician working together," Wyman explains.

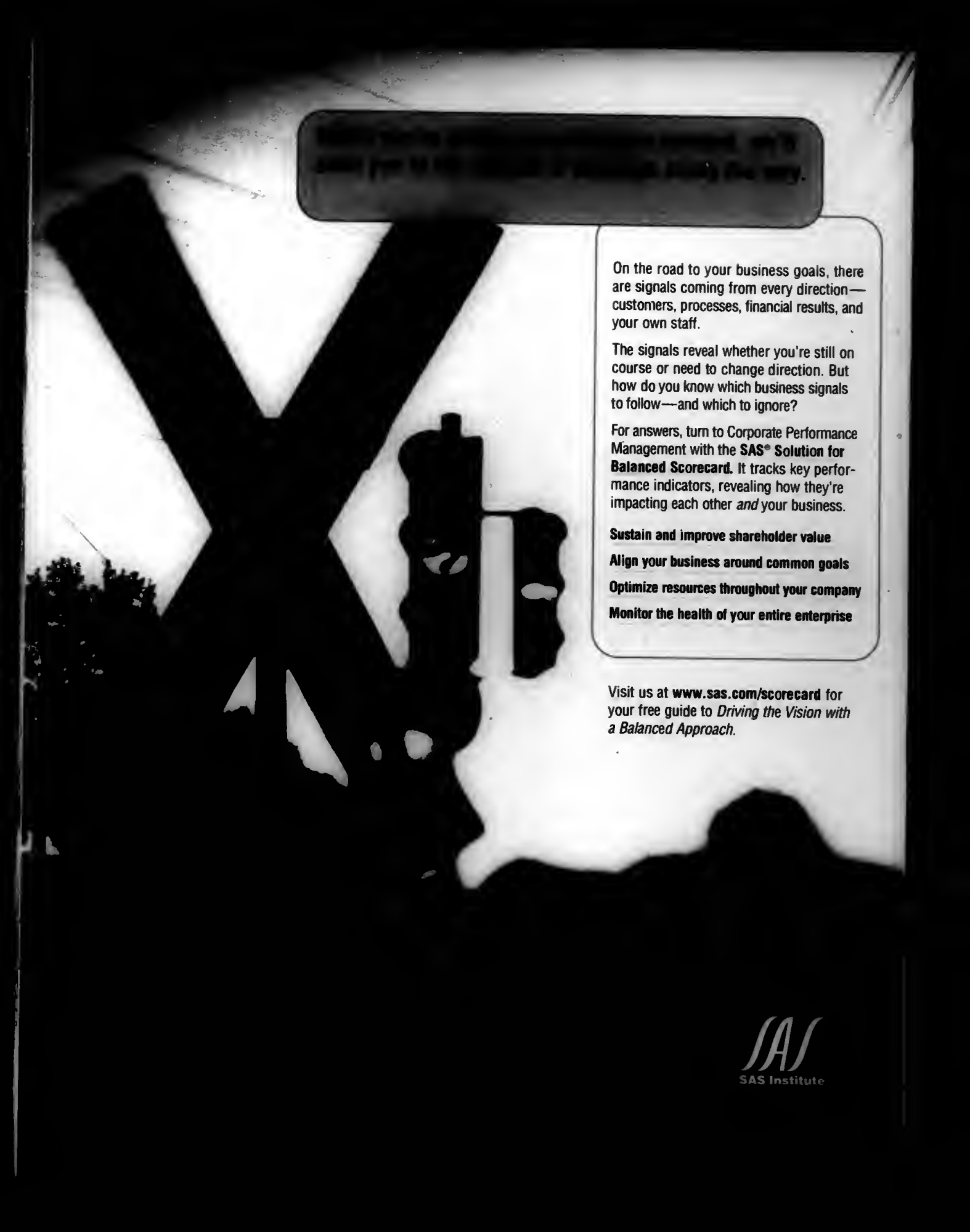
And there's the cost of the PDAs, which Safeway gives away. With the built-in scanner, they cost Safeway $400 each in low volumes. Making matters worse, a number of customers apparently use them as electronic organizers, with no intention of ordering through them. Wyman says the cost will come down with higher-volume buys, and Safeway is considering other schemes – such as carrying paid advertising – to offset the cost.

Another worry is that Easi-Order will reduce impulse buys. Several customers told *Computerworld* that they're now less likely to buy things they don't really need. Safeway's response: to use those smart data-mining techniques to tempt shoppers with promotional items they just can't refuse. For example, Safeway pushes baby products to new mothers through Easi-Order, based on birth notices obtained from a government health agency.

There are some compensating factors to a possible loss of impulse sales. Graham Rutt-Mouret, who does all the shopping and cooking for his family of four, says he spends about $130 per week via Easi-Order. He says Safeway ought to waive the $5.75 per order charge it tacks on. But he says he feels he's joined an elite class of shoppers because he no longer has to queue up at the checkout counter. He says he's less likely now to shop at Safeway's competitors' stores. "I see myself as a different kind of customer now," he says.

Says Alvarez: "That's exactly the kind of feeling you want to generate from a good customer relationship management strategy."

– *Gary H. Anthes*



On the road to your business goals, there are signals coming from every direction—customers, processes, financial results, and your own staff.

The signals reveal whether you're still on course or need to change direction. But how do you know which business signals to follow—and which to ignore?

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Coaching to Aid IT Careers, Retention

Allmerica changes management style

BY JULEKHA DASH

Most companies know that helping information technology employees grow professionally through training and development can be a key retention method. But understanding this process is another matter. How do busy managers make time to give employees the training, mentoring and career direction they need?

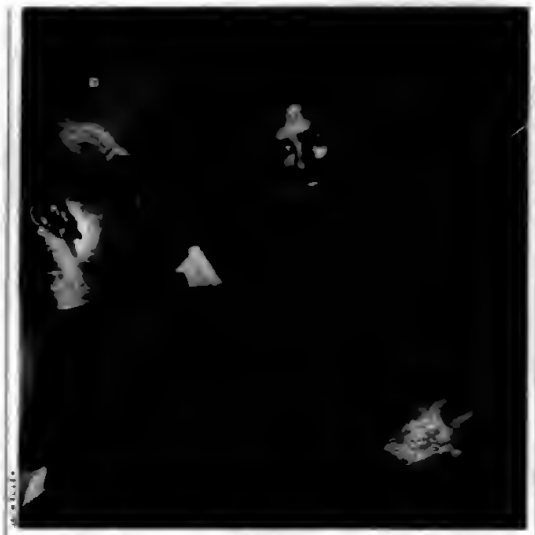
For Allmerica Financial Corp. in Worcester, Mass., the solution was to hire 20 coaches to help manage the company's 850-person IT staff.

"In a traditional management role, managers focus on delivery and people," says Maryellen Doherty, who has been head coach of project management for 16 months at Allmerica. "When a manager focuses on both, delivery is on the forefront, and the development of people's skills and needs become secondary," explains Doherty.

Coaching is hardly a new phenomenon, says Michael Boyd, an analyst at International Data Corp. in Framingham, Mass. For years, companies have employed coaches to help senior executives develop their management skills.

What's new, however, is that the practice is becoming more personalized at lower levels of the organization, says Boyd. Now companies realize that "all critical employees need the same level of enabling advice and counsel," he says.

Fewer than one in five IT workers say they're actively being coached right now, but 42% say they've been coached at some point during their careers, says David Foote, managing partner at Foote Partners LLC, a New Canaan, Conn.-based consultancy that specializes in IT workforce issues. Those figures are based on a Foote Partners survey of 8,500 IT workers at 680 companies.



ALLMERICA'S Dave Lacasse and Maryellen Doherty say the company's adoption of a coaching management style has improved retention

Allmerica introduced coaches 18 months ago as part of a broader change management initiative. That involved transforming Allmerica from a functional organization to a process-driven company, as described in Mike Hammer's *Beyond Reengineering: How the Process-Centered Organization is Changing Our Work and Our Lives* (HarperCollins, 1997).

Centers of Excellence

Part of this transformation included centralizing IT and creating Centers of Excellence (COE), or virtual organizations that consist of a talent pool. Led by a head coach, each COE offers a resource for IT workers seeking training, professional development and networking opportunities. "Centers of Excellence help build a professional identity," says Doherty.

IT employees at Allmerica belong to one of four COEs: software engineering, business services, project management or desktop operations and systems management.

Doherty says she has two goals as a coach: to assign skilled project-management staff to the business units and to provide ongoing professional development to the 40 employees she coaches.

Attending key planning meetings, Doherty works with managers as they identify their staffing needs, and she also fills vacancies.

Doherty also meets regularly with her coached staff, who create individual development plans outlining their goals in the organization. Allmerica has also developed a competency model for each job function so employees can benchmark their performances.

Coaches help employees identify skills they need to develop and to learn how they can improve on existing skills. For example, if an employee needs help conducting meetings, the solution could involve a combination of recommending training courses, assigning a mentor or even reassigning the employee to a project where he could develop that skill.

Improving Job Satisfaction

A couple of years ago, software engineer and 13-year Allmerica veteran Dave Lacasse found himself in a familiar IT predicament: He wanted to make the transition from mainframe to client/server applications. By identifying training courses — including C, C++, Oracle and Unix — and assigning a mentor who could help him gain fluency in the C programming language, Lacasse's coach enabled him to make this transition in a nine-month time frame.

Before Allmerica created the COEs and assigned coaches, Lacasse says he would have found such a transition difficult. First, because his former job was hard to fill; second, because of the long hours. The old job also involved a lot of responsibility because the application manages customers' money.

"It wasn't something that could just be dropped," he says.

But Lacasse's coach had developed a network of associates — including managers, employees and other coaches — and she could identify someone with the skill and interest to perform Lacasse's old job.

Working with coaches helps improve job satisfaction in other ways, says Lacasse. By keeping an eye on his workload, Lacasse's coach ensures that project managers provide ongoing challenging assignments — without overcommitting him.

"Now there's continuous steady workflow, as opposed to peaks and valleys," says Lacasse, describing the change in in workload since the company began using coaches.

Measuring Results

The performance of coaches is assessed based on how quickly they can fill open positions, the quality of the staff they hire, turnover and employees' skill levels. Typically, coaches are expected to fill a position within one to two months. To measure quality of hiring, coaches ask managers to fill out surveys assessing new hires about 90 days after they start.

Michael Osborn, manager of information systems and software engineering at Allmerica, says turnover among software engineers has dropped from about 12% to about 8% since his group started using coaches.

"Oftentimes, we can meet employee needs for career growth so they don't have to go outside the company," explains Doherty.

Would Lacasse still be with Allmerica if he couldn't have made his desired career switch? "I'm not sure," he says.

Doherty's advice to others considering the coaching model is to study your organization's culture and determine your primary objectives. For instance, do you want to reduce turnover? Are there particular skill areas that you want to develop?

"You have to truly believe that focusing on people and development is of business value," says Doherty. "You'll see results in a one- to two-year time frame. It's not a silver bullet." ◗

AT A GLANCE

Allmerica Financial Corp.

Headquarters:
440 Lincoln St.
Worcester, Mass. 01653
(508) 855-1000

Web: *www.allmerica.com*

Industries: Financial services, insurance and risk management

Primary subsidiaries:
- First Allmerica Financial Life Insurance Co.
- First Allmerica Financial Life Insurance and Annuity Co.
- Hanover Insurance Co.
- Citizens Insurance Company of America
- Allmerica Asset Management Inc.

1999 revenue: $3.1 billion

Number of employees: 6,500

Number of IT employees: 850

Role of coaches at Allmerica:
- Identify people and skills requirements for projects.
- Develop job descriptions and individual development plans.
- Run Center of Excellence, a talent pool for projects.
- Develop training, tools and networking opportunities for members within the Center of Excellence.

How to coach employees:
- Help employees network with other employees and create a professional identity within the organization.
- Develop models of work performance toward which employees should strive.
- Work with employees on individual development plans that can help identify their career paths in the organization.
- Identify skill areas that need to be developed and assign appropriate training, mentoring or recommend reassignment.
- Think long term: Don't expect employee performance to improve overnight.
- Assign goals for coaches by targeting areas for company improvement, i.e., retention or filling positions more quickly.
- Have coaches work closely with line managers to understand their skill needs.
- Choose coaches who have both good IT skills and good communication skills.

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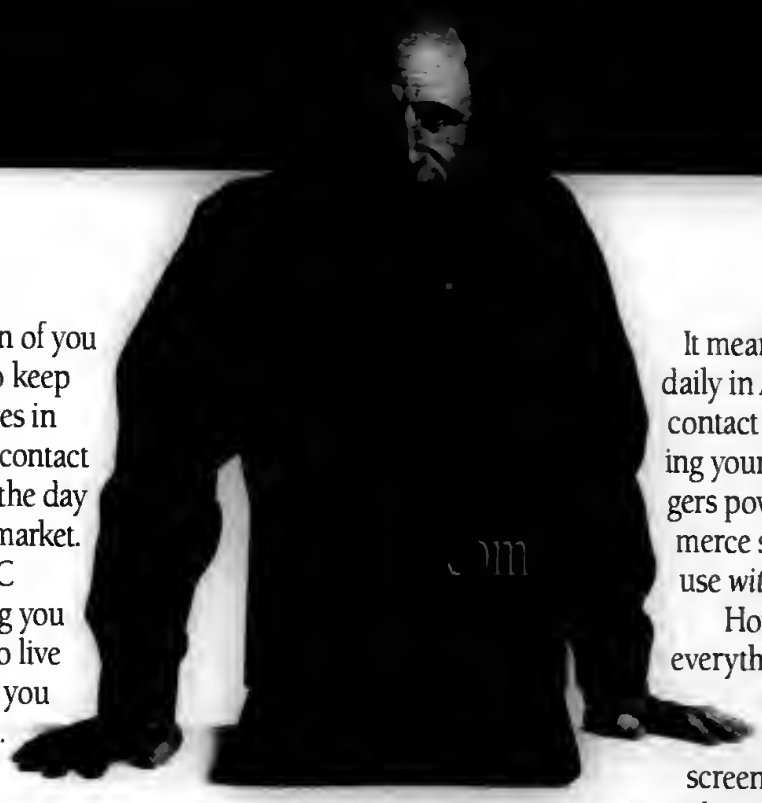

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It's done. Want to buy leads that fit your criteria? Generate automatic e-marketing campaigns?

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Advice to the New IT Manager

BY CHRISTINE WILLARD

YOU GOT THE promotion. Now you're the team leader, even if the team is just the other three techies you've been writing code with all along. Has everything changed? Or nothing? What's this going to mean, besides extra meetings and more paperwork? How do you make the best go of your new role as an information technology manager? To find out, *Computerworld* asked five veteran IT managers, each with more than 20 years' experience managing people (one swears he started at age 12) for some pointers on how to succeed on this new step in your career.

LEOCONNER
"Realize things will never be the same"

– VICE PRESIDENT AND CIO, CALIFORNIA STATE AUTOMOBILE ASSOCIATION, SAN FRANCISCO

"You have to recognize that your role has changed," Conner says. To begin with, he explains, "others will dn what you used to do."

Not that it all changes at once. At the first level of management, supervisors may spend 15% tn 20% of their time on management roles, Conner notes.

But your focus needs to change from understanding every last detail to understanding the business — and the talents of your staff.

Conner recalls a director of software engineering whn rewrote everything his staff put together. "It was a huge bottleneck," he says. "Nothing ever got done."

Seeing his role as a technical contributor blinded the software director tn the responsibilities nf providing leadership and delegating tasks, Conner explains. He was supposed tn give direction and make sure the group went where he wanted it tn go.

"You interpret where the company is going and make that interpretation make sense tn the employees you are supervising," Conner says. "They need to understand how your group contributes tn accomplishing the company's goals and objectives," he adds.

CONNER

Recognize when you need help and use the resources around you, he advises. Human problems like personality conflicts and nffice politics are even more complex than technical issues.

Get help from your human resources department. "You can leverage them as consultants to your group," he says. "Dealing with people is different from dealing with code. You have to approacb it entirely differently."

As a neutral third party, human resources can also help you get credible feedback on how you're doing. You will benefit, and the group will get the message that you want to improve and move forward, he says.

Delegate tasks, but be sure tn fnllow up. "Don't assume that it's going to get dnne at the quality and quantity that you need," Conner cautions. Employees will learn extremely quickly whether you will or won't follow up.

MIKECOLE
"Develop personal relationships"

– VICE PRESIDENT FOR INFORMATION TECHNOLOGY ROCKWELL INTERNATIONAL CORP.'S CORPORATE INFORMATION SYSTEMS, MILWAUKEE

Cole emphasizes the impogtance nf a shift from thinking primarily about the technical aspects of the job to concentrating on the business and interpersonal aspects.

"You need the interpersonal skills and the ability to think through ambiguity and deal with people. Take advantage of any management training your cnmpany offers," Cole advises.

COLE

"The first level is mastering the basics," he says. Understanding how business operates is key to successful IT management. Take as many formal business classes — especially in financial management, accounting, business strategy and marketing — as you can. And consider getting an MBA. "Make sure that whatever service or product you're providing is reliable," Cole says.

You will earn credibility by getting your projects dnne on time. "I never make a commitment that I don't think we can meet," he says. "Execution is absolutely critical."

Another suggestion: Read, read, read. "Music, art, architecture can influence you in IT," Cole says. "Open, generalized thinking is valuable. Be a renaissance person."

He also advises managers to cultivate interpersonal skills. "You have to get things dnne through teams," he says. "The skills of persuasion and negotiation become important." Get training in public speaking; you now need to be convincing about whatever you're promoting or selling.

Network with others within your industry and beyond, he says. "There's a certain inbreeding to thinking in any company," Cole points out. "A lot of the best ideas I come across, I find outside my company."

CHUCKNORRIS
"Always think business first"

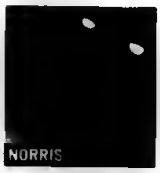
– VICE PRESIDENT AND CIO, AQUA-CHEM INC., MILWAUKEE

Norris has been in management since the 1970s, when he started a consulting business for users of manufacturing software. He joined one of his clients, Aqua-Chem Inc., as an executive in 1995, and he and four other executives bought the company in 1997.

Understand your business, he advises. Look at the cycles and say, "Where are we going next?" Then analyze the situation. Your job is to sort through information and make the best decision for your company.

Have a plan, Norris stresses. Set a goal that looks three to five years down the road, but plan to deliver something every couple of months. Be flexible enough to reflect changes in the industry, he advises, and be able to make internal changes to the plan without having to start over.

Sell your position, Norris says. Your employees


NORRIS

will want the latest tools. Look at where you sit today and decide what's good for your company. Be strong, he ootes.

Norris had to convince skeptical employees when he remained committed to the mainframe rather than choosing to move tn clieot/server technology. "Everybody told me I was outs," he says. "But you have to analyze the situation. What is the payoff fnr my company?"

Aqua-Chem ultimately put up its own network to run the company's ll operations across North America. "We wanted the network to be strong and compatible across the operation," he says. Sticking with the mainframe also saved the company the time and expense of training employees to use a new system.

"Our reps doo't oeed to know that we've built things like e-commerce and desktop publishing on the outside of our system," he points out. "You don't always have tn have the newest technology. It can cost you money in the long run. You have to make the best decision for your company."

Formal education is less important than common sense, Norris says. "Computers are a lot more intelligent than they were when I got into this field," be says. As lnng as you understand business, managing IT is a logical, commonsense kind of endeavor.

As a manager, be notes, you've been given a responsibility to run the organization. "Run it like it means something to you," Norris says.

JERRYMILLER
"Emphasize people in everything"

– SENIOR VICE PRESIDENT AND CIO, SEARS, ROEBUCK AND CO., HOFFMAN ESTATES, ILL.

"You have to have a compassion for others in order to lead," Miller says. "If you doo't, people will see that very quickly and they won't follow. Uoderstand the power of people. They will always be your greatest asset." There are different ways to manage different people, he explains. Be fair and tolerant of faults.

Learn all you can about the business and what it takes for your business to win, he advises.

Miller stresses that you sbould quickly find the answers tn key questions: Who are your competitors? What are the key success factors?

When dealing with your new customers, Miller says, you should present technical solutions in terms the business partners can understand. Know how to convey what technology can do for your business.

"Never let your ethics slide," he warns. "Always do what's right for your company and your people." And don't be afraid to take risks and fail. Miller says — just don't make the same mistake twice.

"There were times in my career when I had doubts abnut my effectiveness," Miller concedes. Focus on the three or four most important things in your job and ask yourself, "What are the most important things for me to focus on in my job today?"

MILLER

Never ask someone tn dn something you wnuldn't do, Miller continues. And take nn extra wnrk. Try tn stretch yourself, but keep your home life in balance — it's part of your job tn set an example to your employees, he points out.

Miller says be firmly believes you should hire people smarter than you are and let them run.

"Someone who has the desire can work to become a great leader by taking advantage of training," he says. "Mold those leadership techniques to your strengths and weaknesses."

You doo't have to be outgoing to be effective, Miller says. Having compassion and being honest, fair, direct and intelligent are more important.

"When you're put in a position tn lead, take charge and lead," he says firmly.

FREDMATTESON
"Learn to leverage your strengths"

– EXECUTIVE VICE PRESIDENT, TECHNOLOGY SERVICES, CHARLES SCHWAB & CO., SAN FRANCISCO

Matteson says he didn't want tn teach when he got out of college with his bachelor of science degree in music. Instead, a Marine Corps recruiter at a jnb fair caught his eye with a white Corvette and "the most beautiful girlfriend I'd ever seen," says Matteson.

Reflecting back, "I found nut that neither nf them was issued by the Marine Corps," Matteson says. But the imagery helped lure him to the Marines.

As a young lieutenant, Matteson learned management on the job. "When you first start out, you're given authority but no implicit respect. You have tn learn bow to manage through other people, to influence them and gain their trust, to manage through status and informatioo sharing," he says.

Young managers should listen more than they talk, Matteson advises. Find the common direction in differing ideas, articulate it and rally support for it.

Build alliances based nn your strengths, he recommends. Establish what you're good at and what others are good at. You don't have to be the best technical person, but you can partner with that person and get support for his ideas, he says.

"I was really good at getting support for somebody else's good idea," Matteson says. "I had the skills to partner with them to get the funding or support for an idea that they may have spent frustrating years trying to sell."

Give up the need tn know, he adds. Technical people want to know every detail of everything. You don't need to touch and feel code to get the project done.

Delivering open and honest feedback may be the hardest thing to learn, "but it's actually the kindest thing to do," Mattesoo says. "When people are failing, everybody knows it, but it becomes the elephant in the room no one's talking about. One of the best things you can do for them as a manager is to help them make some career decisions that they were too scared to make."

Matteson credits his background in music with his facility in pattern matching and improvising, which have contributed to his success in 23 years of management.

"It's very scary at first," he acknowledges. "It's a responsibility, not a right, to be a manager."

JOHN HARRISON

Willard is a freelance writer in Los Osos, Calif.

Communities For Foreign Nationals

BY ERIK SHERMAN "When in Rome, do as the Romans do" is supposed to be good advice. But those hailing from New Delhi may find that advice difficult to follow when Rome is in Georgia or New York.

That's one reason why many information technology workers who have come to the U.S. from overseas are turning to ethnic professional organizations for help. By working with others from their native countries, these foreign national workers find an easier way into the culture — and into jobs.

Particularly well organized are IT professionals from India, who have formed a number of organizations, such as the Network of Indian Professionals (NetIP) and The IndUS Entrepreneur (TiE).

"There's nothing like shared experience, good or bad, [to create] a platform to discuss how one overcame different hurdles along the way," explains Prashandh Viswanath, vice president of product strategy and management at BindView Corp. in Houston. A member of both NetIP and TiE, Viswanath says foreign-born IT professionals need to talk through problems, as well as see that success is possible.

Often, the biggest hurdle to those from outside the U.S. is a lack of business connections. Information about opportunities that passes through informal channels doesn't reach those outside the channels.

"It may not be explicitly being shut out, but the people [aren't] being networked," says Jay Chaudhry, chairman of Air2Web Inc., a wireless application service provider in Atlanta and president of that city's TiE chapter. "If you're not a part of the network, it takes some level of effort to get into it. Many of these networks end up as fairly informal. You don't even know it's happening."

An ethnically focused professional group can offer foreign-born professionals a chance to meet others in their industries — often people who head companies or departments.

But the focus of these groups isn't just business. There is a social aspect, as well as one of social welfare. Viswanath says he spent more than seven years at Microsoft Corp., where he worked with many other Indian employees. "We'd be able to drive a lot of social issues," he says. "When they had hurricanes and floods [in India], we'd get together and donate money."

Some useful organizations are actually designed for American-born professionals with a particular ethnic background. Foreign-born IT professionals may find these groups to be a good bridge between the new and the familiar.

"With some of the foreign born, there's a communications gap," says Allan Rangsithienchai, a vice president at the Thai American Young Professionals Association in Chicago. "To be able to communicate with someone who knows Thai or a little Thai is useful." Such a person can explain the subtleties of job descriptions and even help by editing résumés and introductory letters.

"One thing [employers] look at is how organized you are, how you express yourself, and if you're foreign born, you're already at a disadvantage," says Rangsithienchai.

Harry Joe, an immigration lawyer at Jenkens & Gilchrist PC in Dallas, says he runs into the issue of corporate clients that have brought IT workers into the country on H-1B visas without giving any thought to how they will assimilate.

"There's a very high expectation of foreign professionals to be easy and willing to give up their customs," says Joe. "I can see where alien professionals and their families would have a hard time adjusting to such expedient expectations."

Cultural conflicts may occur in areas like food, hygiene and religious practices. Professional groups can help foreign workers understand what employers expect and offer advice.

Aside from the conflict of customs, there can also be some degree of racism.

"That's part of life, unfortunately," Joe says. "And there may very well be some elements of resentment by American workers toward these foreign IT professionals."

Such attitudes can result in difficulty entering middle and senior-level management, making help from a sympathetic colleague critical to career development.

"That has always been a voiced concern that I've heard on the part of alien professionals," says Joe. "There's a [perceived] glass ceiling for them."

Says Viswanath: "[It's important to have] a platform to discuss how one overcame different hurdles along the way [and] whether it was lack of opportunity. In some cases, it may have been race; in some cases, it may have been a lack of role models." ◗

Sherman is a freelance writer in Marshfield, Mass.

Resources for Foreign National IT Workers

The IndUS Entrepreneur
3065 Democracy Way
Santa Clara, Calif. 95054
Phone: (408) 567-0700
Fax: (408) 567-0777
E-mail: tieadmin@tie.org
Web: *www.tie.org*
■ Offers support for entrepreneurs and networking for professionals from India.

Network of Indian Professionals
NetIP - North America
P.O. Box 743035
Dallas, Texas 75374-3035
Phone: Check Web site for the nearest chapter
E-mail: shalini.verma@netip.org
Web: *www.netip.org*
■ Dedicated to the development of professionals of South Asian origin.

Thai American Young Professionals Association
E-mail: taypa@taypa.org
Web: *www.taypa.org*
■ A largely virtual organization for professionals of Thai descent. The Web site features discussions and links to career resources.

Association of Thai Professionals In America and Canada
6495 Pondapple Road
Boca Raton, Fla. 33433
E-mail: mail@atpac.org
Web: *www.atpac.org*
■ Promotes the advancement of Thai professionals. Holds annual workshops, has a database of member contacts and publishes a quarterly newsletter.

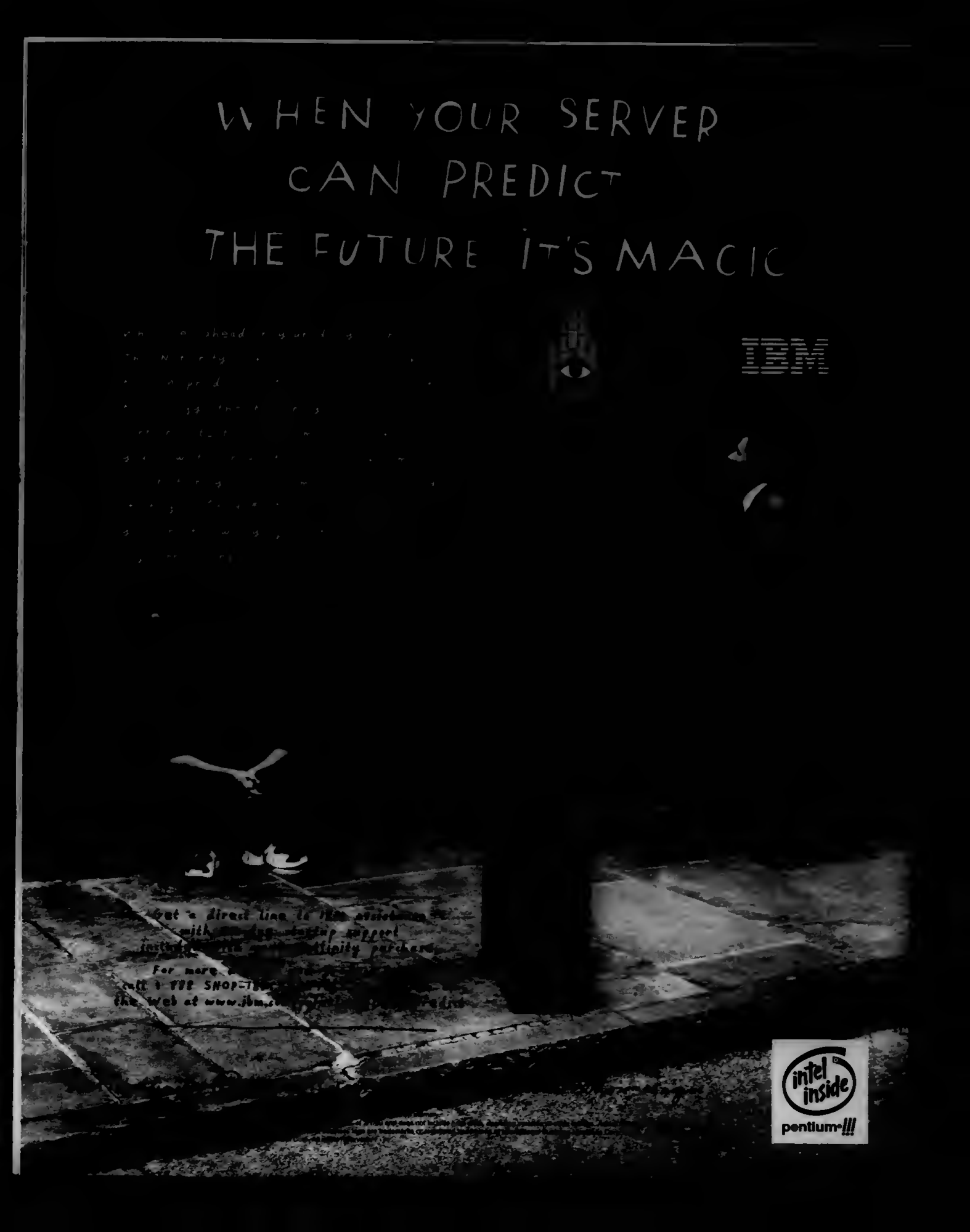
Society of Filipino-American Young Professionals
P.O. Box 06166
Chicago, Ill. 60606-0166
Phone: (312) 565-3580
E-mail: sfayp@sfayp.org
Web. *www.sfayp.org*
■ Holds seminars, entrepreneurship workshops and networking events.

The Congress of Russian-Americans
2460 Sutter St.
San Francisco, Calif. 94115
Phone: (415) 928-5841
Fax: (415) 928-5831
E-mail: crahq@earthlink.net
Web. *www.russian-americans.org*
■ Works to help those of Russian descent participate in life in the U.S.

Immigrants Support Network
P.O. Box 815
Prospect Heights, Ill. 60070-0815
Voice mail: (888) 392-4632
Fax: (847) 506-9964
E-mail: liaison@isn.org
Web: *www.isn.org*
■ A nonprofit organization that focuses on immigration issues.

WHEN YOUR SERVER CAN PREDICT THE FUTURE IT'S MACIC

IBM



E-Commerce Distribution

BY STEVE ALEXANDER

E-COMMERCE has changed the way businesses sell, package and ship consumer goods, and as a result, it has put pressure on information technology staffs to help online retailers fulfill customer orders.

"Until recently, order fulfillment hasn't been an overriding concern of 'e-tailers,' but it's starting to be viewed as a significant differentiator among their customers," says Greg Runyan, a senior analyst at The Yankee Group in Boston. "Now that everybody has sophisticated and intelligent Web tools that help customers have a personalized and unique shopping experience, the question is, 'How effectively can you fulfill your promises?' "

IT people are key players in e-commerce fulfillment because they handle the vital inventory-control and warehouse-management software that allows e-commerce operations to sell and distribute items one or two at a time. In traditional retail, IT's role is less critical because most companies ship consumer goods in bulk to retail stores.

Much of the change in approach involves split-case distribution — a logistics term that means cases of goods are split open on the receiving dock and the individual items from the cases are stored on shelves or in bins in the warehouse, according to Alex Zelikovsky, chief logistics officer at San Francisco-based Reflect.com LLC, which sells customized beauty products for women at its Web site.

DEFINITION

E-commerce distribution (split-case distribution): Breaking, or opening, cases of consumer goods at the distribution center or warehouse, rather than shipping full cases of goods to retail stores, where consumers assemble their selection of products. Individual items from a case are shelved in a warehouse, where warehouse workers act as pickers to assemble and package products a consumer has ordered.

Changing Centers to Stores

"In the past, the classic distribution systems sent cases to a store. The store opened the cases, took the units out and put the units on the shelf. Then customers walked through the aisles with shopping baskets and picked up what they needed," says Zelikovsky, a former director of logistics at Seattle-based Amazon.com Inc.

Zelikovsky, who designed Amazon.com's worldwide distribution network and claims it can handle 1 million shipments per day, says, "In e-commerce, there's a different value proposition. Your distribution center becomes your store."

As a result, IT must handle warehouse management differently, Zelikovsky says. "You need an intelligent warehouse management system that handles what we call 'slotting.' It must receive products against purchase orders and direct that those products be put away in logical locations."

Profiling and Reprofiling

Other warehouse management processes assisted by IT are "profiling" and "reprofiling." Profiling an item involves identifying how popular it is in order to determine where in the warehouse it should be located; if it's a top-selling product, it may go in the best location in your warehouse or distribution center.

Conducting a periodic re-evaluation, or reprofiling, designates when a product is no longer as popular, so it can be moved to a different warehouse location, and another product can be moved into the prime spot, Zelikovsky says.

The biggest change facing e-commerce companies is moving from systems that match pallets of goods with orders and then ship the pallets, to systems that can track and ship individual items, according to David Schatsky, director of commerce infrastructure strategies at Jupiter Communications Inc. in New York.

That puts IT in the position of being the guardian of a customer's buying experience. "The consumer doesn't want to know if the pallet is in the warehouse, but [he] does want to know where his package is and whether the product he wants is in stock or not," Schatsky says.

The IT demands of e-commerce fulfillment are so great that many online vendors may outsource the function, analysts say.

"Most companies don't build warehouses or come up with proprietary inventory and warehouse-management software," Runyan says. "So what we're seeing is outsourced order fulfillment. It's what we're beginning to call the e-commerce execution backbone or layer. It represents a job opportunity for IT people."

Alexander is a freelance writer in Edina, Minn.

Think E-Comm

E-commerce has changed the way IT people working the field must think of themselves, says Alex Zelikovsky, chief logistics officer at Reflect.com in San Francisco.

"In the e-commerce world, service is more important than it is in the bricks-and-mortar world. Because when people order on a Web site, they are putting a lot of trust in the company they are ordering from," Zelikovsky says. "You must have outstanding service every step of the way, and IT professionals and logistics professionals must view it that way."

The demands of e-commerce mean several things for IT people. It's essential that they understand how to modify warehouse management software to fit the business, how to integrate the warehouse with an e-commerce Web site and how to link the warehouse to suppliers' shipping systems, Zelikovsky says.

"You must think of the supplier, the customer, the warehouse management, the shipping carrier and the Web front end as one company," Zelikovsky says. "The common denominator among IT people who work in e-commerce is that they should understand logistics from beginning to end and understand the value of e-commerce distribution. They need to be businesspeople first and IT people second."

Unfortunately, not all IT people in e-commerce companies think that way, says Greg Runyan, a senior analyst at The Yankee Group in Boston. Many Web sites that purport to tell their customers whether items are in stock really don't have a clue if the item is available, he says. "Only a small percentage of e-tailers have real-time integration capabilities. They make their best guess about whether something is in stock or not, but it's often not real-time data."

That kind of IT performance won't cut it these days, Runyan says. "You have to provide more real-time inventory information to customers. That's what they expect now." – *Steve Alexander*

Logistics Terms

Flow-through distribution: Trading partners agree on ways to provide advance notifications of order shipment. Optimization software evaluates advance shipment information, shipment methods and predicted arrival times, then determines the best way to fill orders.

When the order arrives, bar coding identifies the material and attempts to match it to open orders. The purpose is to receive material on one side of the warehouse and, if possible, push it out the other side without ever having to store it. The net effect is to weld the company, its suppliers and its customers into a single enterprise.

Piece pick: Picking individual items (pieces) in the warehouse to fulfill an order. This activity is part of the split-case distribution process.

Serial shipping container codes: A code placed on a shipping container that identifies a single logistical unit for storage. A logistical unit is a way of categorizing the material in an order.

For example, if you order 2,000 packages of widgets, packed 20 packages to a case, a logistical unit could be defined to be either one widget or one package of widgets, depending on the needs of the warehouse.

Split shipment: Items that were included in one order are delivered in several packages at different times because availability or other factors made it impossible to ship them all in the same package.

SOURCES: REFLECT.COM LLC, SAN FRANCISCO; LOGISTICS MANAGEMENT INSTITUTE, MCLEAN, VA.

■ *Are there business terms you would like to learn about in QuickStudy? Please send your ideas to quickstudy@computerworld.com.*

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JOE AUER/DRIVING THE DEAL

Rules to live by in licensing software

SOFTWARE IS PROTECTED by copyright law, which says the copyright holder has all the rights and you don't have any, except those you have been specifically granted.

So, to do a user-friendly software deal, *all* we have to do is accurately predict all the uses we may have for the software and what changes we will make as an organization. We also have to figure out all the ways the vendor will try to charge us new fees for what we already paid for and build appropriate rights, remedies and flexibilities into the contract to effectively deal with those. Really straightforward, really simple, but not really easy.

To help make it easier, here are seven key issues to protect yourself in a licensing agreement:

License type. Most suppliers' standard agreements offer only a nonexclusive, nontransferable license. What's missing are the words *perpetual* and *irrevocable*. There may be restrictions concerning the number of computers or number of users, but the right to use the software should be perpetual without any additional license fees, as well as irrevocable — short of some major default on your part.

Warranties. Supplier warranties are usually very limited, guaranteeing only that the software will conform to published specifications for a short period of time (usually 30 to 90 days). In return for the license fee that you're paying, you should secure stronger — and longer — warranties. The software should be warrantied for a year to ensure that it conforms to specifications, is compatible with the hardware platform, operating system and associated networks (if any), and excludes keys, locks or other devices to control use of the software.

Remedies. If the licensing vendor doesn't live up to a specific warranty or fails to support the software, a remedy should be available. Software remedies should, at a minimum, require the vendor to fix the problem at no charge — and right away. Support remedies should give you the right to obtain the source code if the vendor discontinues support of the software.

Support. It's important to obtain a commitment of support for a certain period of time, say, five years. This provides a comfort level so you won't be forced into a relicensing mode for a "new" product. Also, make sure the support fee covers enhancements (point releases such as from 2.0 to 2.1) and upgrades (products with new major functionality). The maintenance and support fee should cover both.

JOE AUER is president of International Computer Negotiations Inc. (*www.dobetterdeals.com*), a Winter Park, Fla., consultancy that educates users on high-tech procurement. ICN sponsors CAUCUS: The Association of High-Tech Acquisition Professionals. Contact him at joea@dobetterdeals.com.

Divestiture. Given today's business climate, where business units are bought and sold regularly, divestiture should be an important part of license agreements. Obtain the right for any unit that might be divested to continue use of the software for a given period of time (usually six to nine months) without extra charge. Or gain the right to use the software on the unit's behalf for the same time frame. Such a license provision makes for a smoother ownership transition.

Indemnity. The software licensor should protect you against any and all claims made by another licensor, who could allege that the software you licensed infringes on its legally protected intellectual property. If this were to happen, this licensor would sue your licensor and all its customers. To protect yourself, obtain an indemnification clause in the license agreement stating that your licensor will defend you in court, pay any costs you incur and obtain the right for you to continue using the software if it loses the suit.

Assignment. Such provisions give you the right to transfer the license to another entity. Assignment provisions usually limit this right to business entities under the same corporate umbrella. Without such a provision, you could face a relicensing fee if the software is transferred to another business entity as a result of a corporate reorganization, or if you outsource your technology.

Sticking to these basics will give you a solid software license foundation and eliminate the heartburn potential from the most frequent "gotchas." ◗

BRIEFS

Spotlight on Techies

Information technology professionals had a chance to soak in the spotlight last week when Techies.com Inc., an Edina, Minn.-based online career resource, unveiled a national advertising campaign featuring IT workers who use the service. More than 200 people responded to the casting call, from which Techies.com chose six to feature in the TV, radio and Web advertisements.

Shipment Tracker

TranScape, a Bloomington, Minn.-based subsidiary of Stamford, Conn.-based Pitney Bowes Inc., last week released order-fulfillment and shipment-processing software for use by manufacturers. The new Conquest application provides shipment scheduling and tracking capabilities and can also be used to shop for the best deal from national and local freight carriers, TranScape said. Pricing wasn't disclosed on the software, which was delivered to almost 90 users during a phased rollout that started last spring.

App Hosting Service

Best Software Inc. in Reston, Va., last week announced plans to offer application hosting services to users of its Windows-based human resources and payroll software starting in May. Hosted installations will run at data centers operated by Denver-based Qwest Communications International Inc., and end users will be able to access the applications via the Internet. Officials from Best Software, which was acquired in January by The Sage Group PLC in the U.K. for $445 million, said users will pay monthly fees for the hosting service. Best Software didn't discuss pricing.

SAP, IBM Team Up

SAP AG and IBM's technology leasing units last week said they are working together to develop a set of equipment leasing and asset management applications. The software, due from SAP early next year, is supposed to help users streamline tasks such as selling leases, monitoring the status of contracts and analyzing whether a lease is profitable. Internet-based collaboration capabilities will also be included, the two companies announced. Pricing wasn't disclosed.

Lotus Site Launched

IT Factory Inc. in Cambridge, Mass., plans to unveil a new e-commerce site for selling Notes/Domino application objects at *www.components.itfactory.com* this week. The site allows and users to download and purchase components from IT Factory and other Lotus Development Corp. independent software vendors such as Casahl Technology Inc. in San Ramon, Calif., and Seagate Software Inc. in Scotts Valley, Calif.

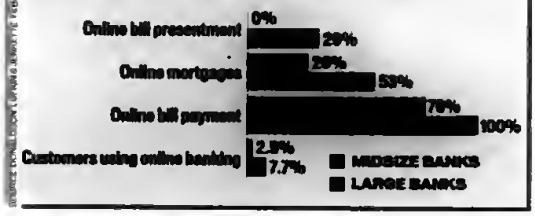
PKI Market on Rise

The market for public-key infrastructure (PKI) will be worth $3.5 billion by 2003, according to U.K.-based market research company Datamonitor PLC. PKI lets users privately exchange data on the Internet. Current PKI revenue is $641 million.

SNAPSHOT

Online Banking

Large banks offer more online services, and more of their customers use online banking than at midsize banks



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TECHNOLOGY

FIRST STEPS

In his second week on the job, our security manager takes the first steps toward creating a companywide security policy and tackles the job of giving a plant manager secure access to e-mail via an Internet service provider when he's off-site. ▸ 68

ENTERPRISE APP

At least one open-source application server may soon be ready for enterprise use, as developers prepare Enhydra to support the latest enterprise Java technology. ▸ 64

QUICKSTUDY

Packet-switched and circuit-switched networks: two technologies used for sending messages; each has advantages for specific applications. The more efficient packet-switching may one day replace the 120-year-old circuit-switching model, but experts say we'll be using hybrid systems for a long time to come. ▸ 74

HANDS ON

Third time around: With two strikes against it, Microsoft's newest Windows CE release could be the game-losing final out — or a winning home run. ▸ 72

MEMORY SNAFU

One of the 400,000 or so Dell notebook users inconvenienced by memory problems was Paul Kirk, senior vice president for information services at United Companies Financial. Kirk was saved by backed-up data, but he says he still blames Dell for trying to rush its Latitude machine to market. ▸ 64

HOTELING RESERVATIONS

Two years ago, "hoteling" — the practice of establishing office workspace and network access for visiting workers — was all the rage. It's been a great success in some organizations. But in an exclusive *Computerworld* survey, readers say hoteling is best suited for special situations unless it's practiced on a very small scale. ▸ 77

REPORTING PARTNERS

Collaborative software lets users view Ganymede network information, performance monitoring data and correlated multisource network data via a new DeskTalk Trend tool. ▸ 66

KEEP ON TRUCKIN'

Freightliner uses Xy-Enterprise's software to expand its ability to publish product information and to improve communication among business units. The truck manufacturer will adopt XML along with the new tools. ▸ 66

FILTER LIST FLAP

Symantec has lodged a complaint with Peacefire's Internet service provider because Peacefire put a link on its Web site to a list of sites blocked by Symantec's I-Gear Internet-filtering product. ▸ 70

BANDWIDTH BOOSTER

EXPAND NETWORKS, a New Jersey start-up, is banking its future on products designed to dramatically increase the bandwidth on an enterprise network. With bandwidth management becoming a hot issue as more companies rely on the Internet and use graphics-rich applications, Expand Networks' Accelerator promises to squeeze more bandwidth out of existing pipes.

80

Open-Source App Server Gets Enterprise-Ready

New version of Enhydra will support latest edition of Java technology

BY CAROL SLIWA

THE ENHYDRA open-source application server may become a more viable option for companies building e-commerce applications to check out as it nears support for the latest Java enterprise technology.

A beta version of Enhydra 3.0 supports Enterprise JavaBeans components and several other key pieces of Sun Microsystems Inc.'s Java 2 Enterprise Edition (J2EE) technology, which developers are increasingly using when creating three- or multitier server-based e-commerce applications.

The developer of the Enhydra Java/XML application server — Santa Cruz, Calif.-based Lutris Technologies Inc., which also provides consulting and technical services for building Web applications — released Enhydra to the open-source community in January 1999. But the early product was geared to help developers connect clients to only one server, said Keith Bigelow, director of product management at Lutris.

More Complexity

The new version, which can be load-balanced, will let companies build more complex applications that include multiple server-to-server links, Bigelow said.

"Until they get the J2EE in there and management facilities, [Enhydra] isn't a competitive application server," said Craig Roth, an analyst at Stamford, Conn.-based Meta Group Inc.

Roth cautioned that for large corporate users, the application server "is too essential a part of an e-commerce site to trust to something that's open-source and comes from a smaller company."

Yet some users are finding that open-source application servers can offer significant benefits to skilled developers.

Ryan Fife, a technology strategist at AnywhereYouGo.com, a bub site started by Dallas-based People Design Technology Inc., said he can identify and fix application bugs more easily than he could using commercial products.

Fife said be once might have spent a day or two tracking a bug before learning from the vendor that it was a product problem.

"Since it's open-source, the community around it is much more involved than I found with [commercial] products," he said. "The open-source community really helps you [to] oot sit around spinning your wheels and get around to writing productive code."

Fife said he likes to track the evolution of the applicatioo server code, so he will have the flexibility to use incremental builds of the product, rather than being forced into all-or-nothing upgrades from commercial vendors.

"The application server market now is very immature. No matier how many big, important things IBM or Microsoft want to sell you, no one has it figured out 100%," said Victor Brilon, another technology strategist at AnywhereYouGo.com.

Chandresh Shah, vice president of marketing and business development at i-engineering.com, a portal in Shelton, Conn., said many companies start out buying expensive software only to find it inadequate for their needs. They then must make extensive modifications.

Both Shah and Brilon cautioned, however, that any companies considering using Enhydra should have a development team experienced in using Java and XML.

The higgest deficiency in the product, Shah said, is its lack of ease of use.

One helpful feature, Fife said, is Enhydra's XML Compiler, which lets him take a pure HTML file and separate the presentation layer from the business logic.

Other open-source application servers include Zope (*www.zope.org*) and the PHP open-source scripting language and Zend engine (*www.zend.com*).

JUST THE FACTS

Enhydra

What is it: Open-source application server

Where to find information about it: *www.enhydra.org*

Public license: Allows developers to freely modify the source code. Enhancements are a developer's intellectual property, as long as he credits Lutris Technologies and the open-source community as the original developers of Enhydra. Code improvements need not be turned back to the open-source community, although that practice is encouraged.

For One User, Dell Memory Snafu Not Fatal

But he blames Dell for rushing product

BY MATT HAMBLEN

One of tbe potentially 400,000 Dell Computer Corp. customers inconvenienced by memory problems with Dell Latitude notebooks was Paul Kirk, senior vice president for information services at United Companies Financial Corp.

A month ago, Kirk said, he noticed that data in files on his Latitude was mysteriously becoming corrupted. The data loss wasn't disastrous for him, however, because he had backed up his files.

On March 10, he learned from Dell that as many as 400,000 Latitudes could have flawed memory modules. The faulty modules would cause loss or corruption of data when machines would lock up after coming out of sleep mode, said Dell. The Round Rock, Texas-based compaoy said it would replace the memory at customers' sites at no cost.

The modules were made by Micron Technology Inc. in Boise, Idaho, a spokeswoman for Micron said. Microo and Dell are determining which company will pay to replace the memory.

"That's a buge number of machines and not something you'd equate with Dell," said Kirk, who described himself as generally satisfied with his Latitude machine. Kirk is arranging through Dell to have a new memory module shipped to his Baton Rouge, La., office and installed by technicians on his company's help desk.

Kirk said that even though Micron made the defective parts, he blames Dell for "trying to push the machines out the door too fast" in a bid to become the best-selling laptop maker. And Dell is to blame, not Micron, "because I bought Dell and didn't buy the chip separately."

Dell spokesman Rob Crawley declined to comment on Kirk's remarks, except to say the proper mechanism is in place to help Kirk get bis machine fixed. "Dell hopes to make [him] as happy as possible," Crawley said.

Financial analyst Charles Wolf at Warburg Dillon Read in New York said Dell should recover nicely from the memory flaw problem, even though it could have a short-term impact on the company's reputation. "These kind of things happen all the time now with components, and just about all the components come from Taiwan, so it could happen to any manufacturer," he said. "I don't think they cut corners at Dell."

AS MANY as 400,000 Dell Latitude notebooks have faulty Micron memory modules

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Trend, Ganymede Partner for Reporting

New software promises to ease monitoring of applications, network performance

BY SAMI LAIS

TWO SYSTEMS management vendors have collaborated on software that will correlate and report on data from multiple sources to ease monitoring of application and network performance.

Trend Application Performance ReportPack from DeskTalk Systems Inc. in Torrance, Calif., will extend integration of the Trend performance analysis and reporting tool with Pegasus network and performance monitoring software from Ganymede Software Inc. in Research Triangle Park, N.C., said spokesmen for the two companies.

Partly because of a history of integration between the two products, albeit only for some network monitoring, "there's a good level of integration," said Dennis Drogseth, an analyst at Enterprise Management Associates in Boulder, Colo.

Here's how the ReportPack works: Desktop agents passively monitor application performance. They then report to the Pegasus server, as do agents residing on network devices. The Pegasus server can also perform active monitoring by initiating a transaction between two desktops and measuring the performance.

The Pegasus server sends the data to the Trend server, which aggregates the data in a database, along with data Trend collects from other applications, management systems and devices.

Trend correlates all the data and presents it in reports. Some of the reports are designed to tell business managers how well their critical applications are performing. Others offer network managers detailed, drill-down data on network device performance.

ReportPack "does a nice job in situations requiring problem solving rather than just getting a picture of your system," Drogseth said.

Trend aggregates the data in a form easily imported by other applications. A Sybase Inc. database license is included with Trend 3.5, although Trend can also use Microsoft Corp.'s SQL. A systems manager can add functions via other software tools that also can use the data, Drogseth said.

For example, Netuitive 5.0 can use the Trend data to do real-time forecasting of network performance, he said. Every five to 15 minutes, the network monitoring software from Netuitive Inc. in Alpharetta, Ga., examines fresh network data and measures that against 32 variables and reports about which, if any, devices are likely to have problems within the next 24 hours.

Trend doesn't yet offer network simulation, but Opnet Modeler research and development simulation software from Opnet Technologies Inc. in Washington can use the data to create virtual prototypes.

Pegasus 2.2, available by mid-April, will cost $25,000 for the basic package. The Trend DataPipe, which lets Pegasus send data to the Trend server, is available as a free upgrade to Pegasus maintenance contract holders. Trend 3.5 server, available now, costs $30,000 for the basic package.

You will need both the Pegasus 2.2 and Trend 3.5 server products to run the new Trend Application Performance ReportPack, which will be available by June for $17,500.

New Application Monitoring Tools

Ganymede and DeskTalk collaborate on:

■ **TREND APPLICATION PERFORMANCE REPORTPACK**
Cost: $17,500
Available: Q2

To run it, you'll need:

■ **DESKTALK TREND 3.5 SERVER**
Cost: $30,000+
Available: Now

■ **GANYMEDE PEGASUS 2.2 SERVER**
Cost: $25,000+
Available: April

XML Drives Publishing Software Selection

Truck maker picks XyEnterprise tools

BY LINDA ROSENCRANCE

About one year ago, executives at Freightliner Corp. decided that they needed a better way to process, manage and, ultimately, publish information about the company's products and services.

After considering several vendors, the company turned to products provided by Reading, Mass.-based XyVision Enterprise Solutions Inc. (XyEnterprise), a developer of content management and publishing software.

DONNA LOPER AND WILLIAM NICHOLSON chose a tool that would allow better documentation for customers and internal data sharing

Founded in 1942, Freightliner is the leading manufacturer and retailer of customized heavy-duty trucks in North America. The Portland, Ore.-based company is also making inroads into the medium- and light-duty truck market, said Donna Loper, the firm's manager of corporate publishing.

Loper said she initiated a needs analysis to determine how Freightliner was storing, managing and organizing information about its products.

The analysis indicated that the system Freightliner was using was inefficient because it didn't allow various departments to share and reuse data, she said. It also didn't allow the company to produce literature about its products that customers needed.

After seeing the results, Loper developed her requirements for a new system.

Any new software system would have to allow separate business units within Freightliner to build a common technical database that would meet the needs of all divisions, she said.

No. 1 Priority: Customer Needs

The company's most pressing need, though, was to provide its customers with up-to-date drivers' and maintenance manuals in multiple media and languages, said William Nicholson, director of marketing strategy at Freightliner.

The way to do that, Loper said, was for Freightliner to adopt XML, a simple, flexible text format derived from Standard Generalized Markup Language (SGML), and to re-engineer the company's database to build a single technical database infrastructure. Although Freightliner was already using SGML — an international standard for information representation — Loper said it wasn't using it to its full advantage.

By migrating to XML, which was designed to meet the challenges of electronic publishing, Freightliner will be able to extract information from its SGML-enabled documents and publish that information in a variety of media.

Loper said the consultants hired to perform the needs assessment, from Isogen International Corp. in Dallas, narrowed the field of vendors that could provide software capable of meeting Freightliner's requirements to two.

The consultants ultimately recommended the XyEnterprise Parlance Content Manager (PCM) and XyEnterprise Production Publisher (XPP) because both XyEnterprise and technical support are based in the U.S., while the other vendor, STEP GmbH, is in Germany.

PCM is a compound document management system that enables companies to manage information as objects in a common database, share and reuse these objects in multiple documents and publish the same information in multiple formats. XPP is a composition and pagination system that automates the production of complex documents.

"Our initial estimates show the implementation of XyEnterprise's industrial-strength composition system will allow us to reduce our print and distribution costs by approximately 30%, which is a significant savings," said Loper. She declined to say exactly how much money the company would save.

Alan Weintraub, an industry analyst at Stamford, Conn.-based Gartner Group Inc., said Freightliner's decision to adopt XyEnterprise's software will give the company the tools to move from SGML — which he said is limiting in capacity — to XML architecture to extend its publishing capabilities.

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Of Ports, Policies And Plant Managers

Week 2: Avoiding a Swiss cheese firewall by limiting open ports and getting a real nice lunch with the boss

Security Manager's Journal

WELL, I QUIT my job because I felt I didn't get anything done. Just kidding (of course), but it is a completely different work environment from my previous position as a network analyst/administrator.

I mean, I can count on one hand the things I've gotten done in the past week: 1) I added myself to the firewall so I don't have to go around the proxy server; 2) learned Microsoft Project to plan all my projects; 3) added an IP address and specified the port needed for a user to access the firewall of a company with which we need to do EDI transactions; 4) was taken out for a very nice lunch by my boss; and 5) read e-mail after e-mail from all the lists I signed up for and then set up filter rules so they all go into one folder. That way, it will be easier for me to read them later.

Oops! Almost forgot — I signed up for a class on Check Point Software Technologies Ltd.'s FireWall-1 and registered for the SANS Institute 2000 security conference. Quite an exciting week, huh? I am really trying hard to decide how to begin. There is so much work to do that I could easily start one project, then another and not get back to the first until four months later.

We're Safe - We Think

Our team had a meeting Wednesday — our first meeting together. We decided that we will meet every Wednesday so we can bring up any changes that are going to be made to any of the servers or the network during the regular weekly maintenance period each Sunday from 2 to 11 p.m. We also decided that we will create an intranet site for our IT department to keep everyone in it informed.

There's a general feeling around here that we're pretty safe. We have a very low external profile as a company and as a dot-com, and the threat of an external attack is less likely as a result of our safeguards and an attack would take a very long time to engineer. We'll see how true that turns out to be.

My plan (I think) is to study the security audit done by a Big Five firm six months ago and form a strategy from that to present to the director of network services. At the same time, I will be building my lab with a test environment to mirror our production environment. This will include a direct link to the Internet and a copy of FireWall-1 for me to mess with before I apply changes to the real firewall. There is also the possibility of placing an NT box and a Linux box on a hub outside the firewall, just to see what kind of hits our network is taking.

There are some wonderful documents written by Lance Spitzner on building your NT box for FireWall-1, as well as other security how-tos, such as auditing the failed or rejected packets from FW1, among others. I found them at *www.enteract.com/~lspitz/pubs.html*. I will be building the lab next weekend, and I will let you know how I configure my firewall and any challenges that I come across. A major task is to build a real-time intrusion-detection system for our internal network.

Trust the Techies

The products I will be testing include Internet Security Systems Inc.'s RealSecure and Network Ice Corp.'s IcePac product lines. One of the things I look for in a company is not whether it has the best product but whether my company already buys from it, so we can lower our overall purchase price of its products, which in turn lowers our total cost of ownership.

Another important factor is customer support. I'm a huge believer in talking with the technical support people at a company before I buy from them. Salesmen will always be nice and tell you what you want to hear, but it's the technical support staff that will let you know the true limitations and selling points of the product.

Another issue is that a plant manager wants to receive e-mail via his new laptop through an Internet service provider when he's off-site. He can't access the corporate Exchange server from the Internet for two reasons: first, because his mailbox resides on our remote mail server in Cleveland and not on the main mail server in Denver, and second, because as a remote site on our internal frame-relay circuit, it's not addressable or viewable from the Internet. Because his mailbox resides on a remote internal Exchange server, I will have to translate the remote mail server address by taking the internal IP address of the mail server and giving it a legal address from one of our internal networks.

I will add a rule to the firewall in Denver allowing access to that address from the Internet. By default, Exchange randomly assigns the Exchange remote site services to high-numbered UDP ports at random. Instead of opening all those ports, we want to limit the number of ports that are opened and, thus, the number of holes in our firewall. So we will have made the changes in the registry of the remote site to point to the ports we specify and will then create a group object reflecting the assigned ports on our firewall.

Selective Access

Any inbound IP packets destined for the remote mail server using the specified ports will be allowed through, and everything else will be dropped. Now, in FW1, you have to add the address to a local.arp file and stop and restart the firewall daemon so it will see the entry you just made. We will also have to add an entry to the cached route table.

Next week, I have a meeting planned to discuss deploying modem pooling for our dial-out users so we can get rid of all the desktop modems on our campus to eliminate a possible back door for hackers [see "Now, Firewalls for Your Phones," Technology, March 13]. I have created a global group on NT for the software and dial-out access rights to better centralize planning and administration of dial-up users and their rights. I plan to use the help desk for troubleshooting, since I am only one person and the help desk has 10 people. ◗

THIS WEEK'S GLOSSARY

Address Resolution Protocol (ARP): A set of rules used to find a node's physical address when only its logical IP address is known.

Daemon: A program that executes in the background, ready to perform an operation when required.

Frame relay: A high-speed packet-switching protocol used in wide-area networks.

IP (Internet Protocol) address: The number that identifies a specific node on a network.

Network address translation (NAT): Router-based software that allows private IP internetworkings that use nonregistered IP addresses to connect to the Internet.

Network operations center (NOC): The physical place in a large enterprise that contains the network management consoles.

Packet: A frame or block of data used to transmit information.

Port: A pathway into or out of a computer.

User Datagram Protocol (UDP): Part of the TCP/IP protocol; used in place of TCP when reliable delivery isn't required.

LINKS

www.enteract.com/~lspitz/pubs.html: Tutorials on building an NT box for FireWall-1, as well as other security how-tos, such as auditing the failed or rejected packets from FW1.

www.computerworld.com/home/print.nsf/all/000313F5C2: An article about a San Antonio-based company that offers firewalls for phone systems.

www.checkpoint.com/index.html: Check Point Software Technologies' site; includes links to a resource library, an online license center and discussion groups.

www.checkpoint.com/products/technology/exchange.html: Instructions for adding Microsoft Exchange Server support to FireWall-1, from Check Point Software.

■ *This journal is written by a real security engineer whose name and employer have been disguised for obvious reasons. It is posted at* www.computerworld.com *and at* www.sans.org *each week to help you and our security manager — let's call him Pat — better solve your security problems. Contact him with comments or advice at info@sans.org, with the subject line* Pat's Journal, *or at* www.computerworld.com/sjf.

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Symantec: List of Blocked Sites Breaks Copyright Laws

BY ANN HARRISON

Symantec Corp. is pressuring a Massachusetts Internet service provider to remove links to a list of Web sites blocked by Symantec's I-Gear Internet filtering product and to a program that decrypts the list. Symantec charges that the information is protected by copyright laws and trade secret laws.

Peacefire, the group that posted the links on its Web site, contends that the links reveal a tool with a high error rate that also violates users' privacy.

Symantec's effort to yank the links reflects a strategy some companies are using either to prevent the distribution of information they consider damaging or to ban software created by reverse-engineering of their products.

Peacefire.org, a Seattle-based organization, posted the link that listed 470,000 sites blocked by the I-Gear product. The link to the I-Gear list is included in a report that provides another link to a code-breaker program called igdecode that decrypts the list.

According to Bennett Haselton, a freelance programmer in Seattle who maintains the Peacefire site, the group also found that the I-Gear installer retrieves the user's "real name" and "company name" from Windows registration information on the user's computer and sends that information back to Symantec without notifying the user — apparently in violation of the privacy policy on Symantec's Web site.

I-Gear is used in New York public schools to filter out pornographic or offensive sites. But Haselton said the decrypted list reveals a 76% error rate for .edu pages that aren't pornographic.

Symantec Vice President and General Counsel Arthur F. Courville fired off a letter to Peacefire's Internet service provider, Media3 Technologies LLC in Pembroke, Mass., demanding that it remove the links to the I-Gear blocked-sites list on Symantec's server and to the code-breaker program.

In his March 1 letter to Media3, Courville stated that the I-Gear filtering list is copyrighted by the company and contains trade secrets owned by Symantec. Courville added that the list of barred sites was gained with a key number from a licensed copy of I-Gear, which violates Symantec's copyrights and trade secret rights as well as the I-Gear license.

"To publish that list to the world is not permitted in the license agreement," said Courville.

"[Haselton] posted a copy of, or a part of, our product for free distribution and I don't think there is any context where he could claim that is not a copyright infringement," he added.

Haselton emphasized that Peacefire didn't break into Symantec's server to decode the list. Instead, the organization reverse-engineered I-Gear's protection scheme — a maneuver that consisted of swapping the first few bits at the beginning and end of the list of blocked sites. He said he installed I-Gear and then used a network capture tool to see what bytes it sent out when it updated the blocked site list by downloading the latest version from the Symantec server.

Civil libertarians say that reverse engineering is supported by fair use provisions of the copyright laws. In February, Sony Corporation of America brought an intellectual property case against Connectix Corp. in San Mateo, Calif., charging that Connectix was illegally reverse-engineering Sony's copyrighted material to make a rival product that allowed Sony PlayStation games to run on Apple Computer Inc.'s Macintosh operating system.

The U.S. 9th Circuit Court of Appeals ruled that Connectix's actions were protected as fair use.

The 1998 Digital Millennium Copyright Act outlaws technologies that can defeat copyright protection devices, but permits reverse engineering for encryption, interoperability and computer security research.

To find the error rate on the cross section of I-Gear's blocked-sites list, Haselton said the entire list had to be decrypted. He said it's a good example of why reverse engineering and code-breaking should be legal.

"He did something improper before he even got to the reverse engineering stage," countered Courville. "I think reverse engineering is an important issue in the industry and I am watching what is happening in the courts, but I don't think it's relevant."

Peacefire said it hasn't removed the link to the Symantec server. But Haselton said the link contains a serial number that has to be verified before the list can be downloaded, and Symantec has deactivated that serial number to stop the link from working.

Media3 has yet to take action on the complaint.

As for the alleged privacy violation, Courville said that when Symantec acquired the I-Gear product last year, the company wasn't aware that user information was being collected by Windows NT versions of the software. While Courville said the Symantec privacy policy applies only to the material on its Web site, not its software, he said the company will remove this feature of the product.

AT A GLANCE

Sites That I-Gear Blocks

Peacefire says many pages blocked by I-Gear's tool aren't pornographic, such as parts of the following:

- *The Decline and Fall of the Roman Empire*
- The American Civil Liberties Union site *(www.aclu.org)*
- The Electronic Privacy Information Center site *(www.epic.org)*
- The Center for Democracy and Technology site *(www.cdt.org)*
- The Electronic Frontier Foundation site *(www.eff.org)*
- A Description of a milking machine system written in Spanish

BRIEFS

Holcom Introduces Virtual Wiring Closet

Holcom Networks in Carlsbad, Calif., has introduced the Communications Gateway. Acting as an intermediate distribution frame, the Communications Gateway distributes copper and fiber-optic cabling to the work area and becomes a "virtual wiring closet," housing wireless hubs, servers and power equipment, workgroup switches and all major brands of media converters. The Communications Gateway can accommodate LAN speeds ranging from 10Base-T to Gigabit Ethernet and beyond, the company said. Pricing for the product has not yet been released.

SAP, BackWeb Partner On E-Commerce Push

Enterprise resource planning vendor SAP AG and BackWeb Technologies Inc., a San Jose-based provider of push technologies for e-commerce systems, have announced an alliance to use BackWeb's Polite technology as an underlying component of SAP's business-to-business online marketplace, mySAP.com. The two companies said the deal will enable organizations to streamline processes and reduce the costs and time associated with requests for quotes and proposals. The alliance will also enable BackWeb technology to be used within applications built with mySAP.com technology. Financial terms of the agreement weren't disclosed.

TechExcel Updates Help Desk Software

TechExcel Corp., a Lafayette, Calif.-based provider of integrated Web and LAN tracking and workflow applications, has announced ServiceWise 2000. Designed for technical support and help desk organizations, the product is an update of the company's customer and incident tracking application.

ServiceWise 2000 offers comprehensive asset management, remote diagnostics, e-mail integration, service-agreement management and pager and voice-notification functions. TechExcel is offering a downloadable evaluation copy of the product at *www.techexcel.com*. Prices for the ServiceWise application and server software, scheduled for release April 1, start at $1,995. Optional add-on Asset Manager, Agreement Manager and Diagnostic Manager modules will also be available.

Document and Data Management via the Web

Visual Software Inc. in Washington Crossing, Pa., has announced docLibrarian, a Web-based document and database management system. From remote locations, users can access scanned images, documents, databases and other files in their original format. According to the company, the product can store any type of document online, including Tag Image File Format, Portable Document Format, AutoCAD and Excel spreadsheet files, and can publish content in PCs and workstations for immediate viewable and searchable access. DocLibrarian's search engine doesn't require the user to know how a document is stored to locate a file or image, and users can configure the product for industry-specific needs by specifying expressions or patterns.

Tibco Tool Models Data Flow

Tibco Software Inc. in Palo Alto, Calif., has released a business-process automation tool for use in modeling the flow of data between different applications running inside a single corporation or at multiple companies. The Java-based TIB/Integration Manager software can also be used to change business processes, such as the way orders are entered and processed, according to Tibco. The tool runs on Windows NT and Solaris and costs $250,000 per server.

Aaxion Reliability Management Software

Aaxion Software Corp. in Marlboro, Mass., has introduced LookOut, which it calls a proactive reliability management tool aimed at preventing IT hardware failures. LookOut uses a hierarchy of algorithms at the device and subsystem levels to detect server hardware anomalies before they fail, said a company official, unlike fault-tolerant systems that continue to operate after a component fails. By monitoring streams of event data for indications that a server is heading toward an outage, LookOut gives ample time to take corrective action, the official said. The software is available for AIX, HP-UX, Linux, Solaris and Windows NT/2000.

Quiet Disk Drive

Quantum Corp.'s Hard Disk Drive Group will launch what it claims to be the quietest hard disk drive, the Fireball lct15. The 3.5-in. drive features Shock Protection System II, Data Protection System and Quiet Drive Technology. It can be optimized from 7.5 GB, 15GB, 20.4GB or 30GB. Estimated pricing for the 30GB Fireball lct15 is $259.

Business Process App for The Internet and Intranets

IntelliCorp Inc. in Mountain View, Calif., has announced LiveModel WebExpress,a Web server add-on to IntelliCorp LiveModel that publishes companywide and enterprisewide business processes via the Internet and/or corporate intranets. LiveModel WebExpress provides a high-level view of enterprise processes, a company spokesman said, enabling the rapid and accurate publication of business process models to the corporate intranet and eliminating the need for custom client desktop software.

SAP AG's mySAP.com Workplace can be configured to accommodate LiveModel WebExpress, which delivers job-specific process information. LiveModel WebExpress requires Microsoft Internet Explorer 5.0 or higher and is now to use at several pilot sites. Pricing begins at $75,000 for the first 50 users.

A First Peek at the Newest Windows

Third time around, with two strikes against it, Microsoft's newest Windows CE release could be the game-losing final out — or it could be a potentially winning home run. By Russell Kay

SINCE ITS 1996 launch on what was then called the Handheld PC, Windows CE has been the poor stepchild of Microsoft Corp.'s family of operating systems, designed for an ever-changing succession of small, out-of-the-mainstream computers that never quite caught on.

Remember the Palm-Sized PC with stylus input and no keyboard, or the Handheld PC Pro, a kind of mininotebook that wasn't really handholdable at all? Regarded by many as a crippled version of Windows 9x, Windows CE in its various incarnations has seemed to embody most of the disadvantages but little of the real power of the desktop Windows.

The third time around, however, it looks like Microsoft finally got it right. More right, anyway. At a reviewer's workshop, I got an intensive briefing on this new operating system for the platform that's now been renamed the Pocket PC. I also got to see prototypes of hardware from Casio Computer Co., Compaq Computer Corp. and Hewlett-Packard Co. that are due to be launched with the system. The new software is clearly better than either its predecessors or, in my opinion, its chief competitor, Palm Inc.'s PalmOS.

I've been using the new operating system on a current-generation HP Jornada 430se, and although there are things I can't discuss until the launch in mid-April, I've seen enough to think the system will be a winner. And its success will be critically important to Microsoft.

Strategically important

Between the attention given to Windows 2000 and Microsoft's legal battles, there's been little public awareness of Windows CE. On balance, that's probably been good for Microsoft, because previous generations of CE had interface and compatibility problems that limited their acceptance in the face of the Palm's user-friendliness.

The fact is, the Pocket PC is far more important to Microsoft's overall future than I had been aware. The company is putting significant resources behind the new platform — and with good reason.

Simply put, the Web browser has become the only window anyone really needs, and the actual computer underneath (both hardware and operating system) hardly matters.

In this new Web-centric environment, the Pocket PC's intelligent browser and relatively large color display give the Microsoft platform a strong advantage over Palm-based devices. Together with a number of enterprise-oriented features (more on this after the launch), plus significant storage and computing power, the Pocket PC may turn out to be Microsoft's secret weapon for staying relevant and competitive.

I'm tempted to think that the Internet's threat to Microsoft's dominance — an argument the company used in its defense against the Justice Department suit, and which most observers have pooh-poohed — may be more realistic than even Microsoft thought. Time will tell. ▶

CREATURE FEATURES

Here's a quick rundown on some of the new machine's features. The software that ships in April will have more features and more applications.

A NEWIE GUI. Microsoft has cleaned up and simplified the graphical user interface with context-sensitive menus and good handwriting recognition. Selections require only a single stylus tap, and the color screens are significantly bigger (three times the pixel count) than the new Palm IIIc.

COME BROWSE WITH ME. The centerpiece of the new operating system is a new Pocket Internet Explorer, which can intelligently translate and resize Web pages on the fly to fit the 320- by 240-pixel color screen. This reduces the need for horizontal scrolling. The new browser also supports AvantGo Inc.'s Web-clipped pages tailored for small screens, but it doesn't need to depend on it – potentially a huge advantage.

YOU'VE GOT MAIL. Inbox, the e-mail client, is well integrated with and works similarly to the desktop's Outlook 2000 program. Attachments to e-mail in Word or Excel are now automatically converted for Pocket PC viewing and editing.

LIBRARY LITE. Microsoft Reader, an electronic book program, incorporates the first public use of ClearType technology for dramatically improved font rendition ["Type for E-Books," Technology, Aug. 9, 1999]. You can carry an entire year's worth of reading on a single compact flash card.

TUNES, TOO. Windows Media Player plays CD-quality sound from MP3 or Windows Media files through a headphone jack, as well as MPEG video, thus also replacing a portable MP3-type player.

PLUG-IN AND PLAY. Autorun compact flash cards can automatically install and uninstall their software upon insertion and removal, which will simplify distribution and use of many types of programs. Games are an obvious choice, but so are many database and vertical applications.

FEED ME DATA. ActiveSync 3.1, the Windows-based replication program, now can sync data to the Pocket PC over a variety of links, such as compact flash (CF) modem or infrared. Universal Serial Bus is now and won't require the expensive extra cradle that the Palm does.

NO CORDS NEEDED? Wireless-ready is how Microsoft describes these new devices. While all-in-one-device solutions (à la Palm VII) are s few months off, the new Pocket PCs will be able to use forthcoming wireless CF modems or connect to cell phones via cable or infrared. Bluetooth wireless networking products are expected in the fall.

POCKET POWER. One major complaint about CE devices has been short battery life (hours, vs. weeks for the Palm). But newer Palm and Psion PLC machines with more features and color screens show power consumption up and battery life down, approaching those of the CE systems. A Compaq spokesman said that 10 to 12 hours before recharging will be the industry norm.

Unlike the Windows CE pictured, the Pocket PC's start button is located at the top of the screen

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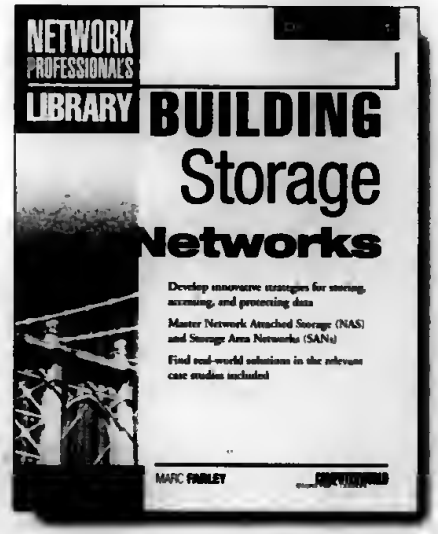

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Packet-Switched vs. Circuit-Switched Networks

BY LEE COPELAND

CIRCUIT-SWITCHED networks and packet-switched networks have traditionally occupied different spaces within corporations. Circuit-switched networks were used for phone calls and packet-switched networks handled data. But because of the reach of phone lines and the efficiency and low cost of data networks, the two technologies have shared chores for years.

Designed in 1878, circuit-switched networks reserve a dedicated channel for the entire communication.

The primary hardware for a circuit-switched network is the private branch exchange (PBX) system. Computer servers power packet-switched networks.

In modern circuit-switched networks, electronic signals pass through several switches before a connection is established. And during a call, no other network traffic can use those switches.

In packet-based networks, however, the message gets broken into small data packets that seek out the most efficient route as circuits become available. Each packet may go a different route; its header address tells it where to go and describes the sequence for reassembly at the destination computer, says Joel Maloff, president of consultancy Maloff Group International Inc. in Ann Arbor, Mich.

Technologies Converge

Formerly, packet-switched digital networks would connect to circuit-switched ports to gain access to computer networks in different locations. But nowadays, remote dial-up access to corporate computers is usually over the Internet, using global Internet service providers (ISP), says Ron Westfall, an analyst at Current Analysis Inc. in Sterling, Va.

"For a large organization, the payoff is self-evident," says Westfall. "If you can go from paying for one long-distance call from a hotel in Singapore to [paying for] one local call to an ISP in Singapore and another call to the ISP near your headquarters in New York, you're only paying for two local-access charges."

With the expanded use of the Internet for voice and video, analysts predict a gradual shift away from circuit-switched networks.

"A circuit-switched network is good for certain kinds of applications with limited points to go to. If you're doing voice applications solely, it's great," says Maloff. "But if you have multiple locations to get to and large amounts of data to transmit, it's better to break it down into packets."

Voice-over-IP vendors point out that IP-based calls are cheaper than circuit-based ones, but analysts say it will be a long time before corporations abandon proven PBX systems and use packet-based networks for data, voice and video. The biggest impediment to voice-over-IP is poor voice quality and call latency, says analyst Michael Arellano at Degas Communications Group Inc. in Westport, Conn. "With packet-switched networks, what happens if the packets containing voice signals arrive at different times or in a different order? [A congested network] can also drop packets."

"Currently, there's a PBX side of the house and an IT side of the house," Westfall says. "But if you survey IT managers, they're not hopping up and down to put voice on data networks. They have enough challenges maintaining the data network."

"PBX is a proven technology. Although it's proprietary, it's efficient at delivering voice traffic and offering features like voice mail," Westfall says.

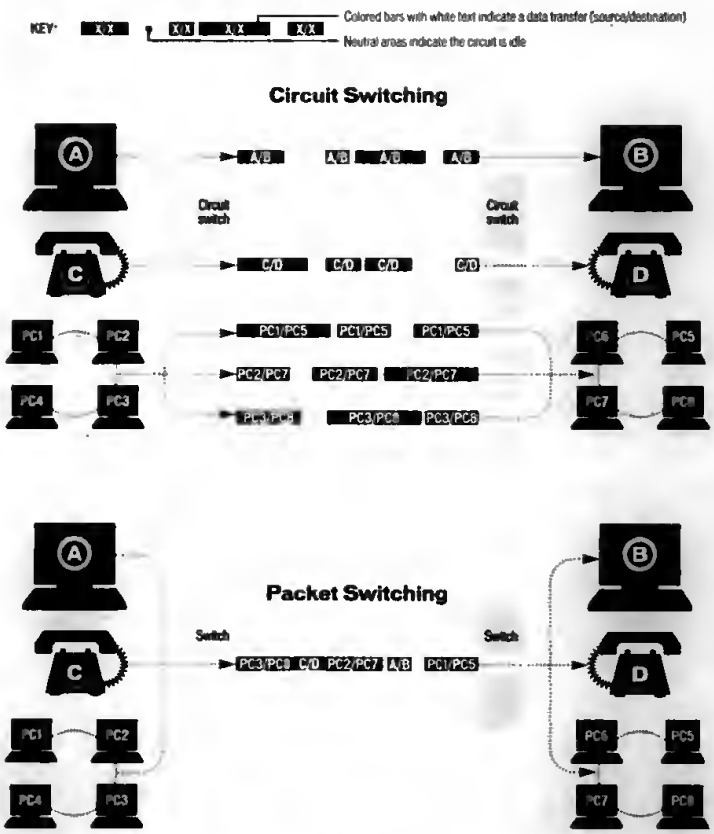
"Packet switching is more efficient," Maloff agrees. "But we'll have hybrid systems for the next several years."

DEFINITIONS

Packet-switched networks move data in separate, small blocks — packets — based on the destination address in each packet. When received, packets are reassembled in the proper sequence to make up the message. **Circuit-switched** networks require dedicated point-to-point connections during calls.

Circuit Switching vs. Packet Switching

Circuit-switched networks assign a separate, dedicated phone line to each sender/recipient pair. Multiple communications require multiple lines. Packet-switched networks, however, break individual messages into separate packets that can travel together or separately over whatever lines are available. The receiving switch sorts out the packets, assembles them back into the original messages and sends them along to the indicated recipients.



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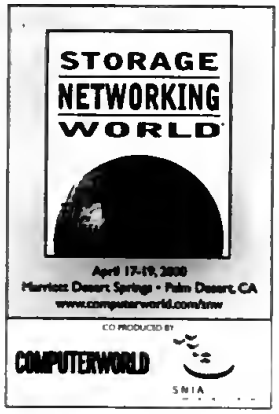

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SANergy

Touch Down

Borrowing a wire is all that's necessary when itinerant workers temporarily land at the office. By Amy Helen Johnson

WHEN Ernst & Young LLP consultants want to spend time in the office, they have to make reservations. With most of its workforce on the road or permanently assigned to client sites, the Cleveland-headquartered Big Five accounting and management consulting firm saves money by eliminating traditional individual offices and operating a hoteling infrastructure.

A way to share office space among employees who are usually out of the office, hoteling involves building generic offices that anyooe can use on request. A reservatioo system assigns space to employees, and networking software gives them access to corporate resources. The concept may also be used at companies with project-oriented cultures, where workers form temporary teams for days or months to tackle particular jobs.

SIXTY PERCENT of employees assigned to Ernst & Young's Pittsburgh office actually work at client sites, says Hank Sobah, senior manager for technology services

Hoteling enjoyed a flavor-of-the-month celebrity in 1996 and 1997, with whole companies unscrewing nameplates from doors and switching to temporary landing slots. But large-scale hoteling proved unwieldy and unwanted, and most of the experimenters reverted to the typical permaneotly assigned office or cubicle. "I don't think hoteling has worked that well, by and large," says Kazim Isfahani, an analyst at Giga Information Group Inc. in Norwalk, Conn. "I haven't seen that many shining examples of it."

Hoteling isn't something that FFE Transportation Services Inc. in Dallas oeeds, says Allen Woody, MIS systems manager. The trucking business really requires more centralized operations — and employees, he says.

"There are a lot of companies which can benefit from [hoteling]. Unfortunately, I don't think we're one of them. ... We have sort of a bull-pen environment, where you might have eight or 10 dispatchers working together, and they need to be able to communicate very quickly with one another, like over a 3-foot wall."

What hoteling experiments proved, however, is that the concept has tractioo for certain corporate cultures and types of employees. Small-scale hoteling, where an office supports a few work spaces, is fairly common.

Geoeral Dynamics Corp.'s Electronic Systems Division in Colorado Springs maintains a few cubicles for visitors in a work area that supports 80 employees, says Frank Loccisano, deputy product support manager for collaborative products and technologies.

The company will expand its hoteling efforts, in part, because of the number of telecommuting employees. "The whole point behind this is to cut costs or to limit the overhead as much as possible," Loccisano says.

Hotel Check-In

One reason the wholesale hoteling initiatives failed is that in most organizations, the majority of the workers stay at the office. A *Computerworld* survey conducted last month of 87 readers who practice hoteling found that in 76% of organizations that offer hoteling, at least 90% of employees had permanent office space.

So who uses hoteling offices? Generally, readers tell us, employees visiting from other company sites snap them up. Seventy-five percent of those surveyed said colleagues took the greatest advantage of hoteling sites: telecommuters coming into the office made up 66% of users, contractors 56%, part-time employees 45% and guests and visitors from outside the company 28%.

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Touch Down

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Real-estate concerns drive the return-on-investment for hoteling, says Jack Gold, senior program director at Meta Group Inc. in Westboro, Mass. Large cities with expensive office rentals are ideal for hoteling sites. Although *Computerworld* readers cited employee satisfaction as the greatest benefit that hoteling yields, saving money on office space was a close second, listed by 59% of the respondents.

During the past four years, mobile computing tools have become fast, reliable and less expensive. Because most employees who would use a hoteling office travel frequently and have laptops and remote-access services, the distinction between hoteling and mobile computing is now small, says Gold.

Gold says hoteling has evolved from a concept in which the information technology department controlled the transient desktop computers and connections to one where IT supplies a handwidth and a comfortable environment for well-equipped road warriors.

At hoteling sites operated by *Computerworld* readers, the survey shows that 80% of users bring their own laptops. Regardless, 68% of companies provide a PC in the hoteling office, and 22% have a thin-client setup.

Creating a hoteling office can be as simple as setting aside one cubicle with an Ethernet connectioo that people can use to plug their laptops into the corporate network. But when the majority of employees are out in the field and may return to work in the office for extended periods of time, their numbers and needs dictate that the hoteling infrastructure be more complex.

Such is the case at Ernst & Young. Its Pittsburgh branch devotes two-thirds of its office space to hoteling, says Hank Sobah, senior manager for technology services. About 60% of the people assigned to the Pittsburgh office actually work at client sites, he says. Given the high costs of office facilities, hoteling was preferable to carrying the overhead for office space for all employees.

Now, when Ernst & Young workers arrive at the office, they contact the room coordinator (sometimes referred to as the "concierge"), who uses the 3V Enterprise resource management suite from AgilQuest (formerly known as V Technologies International Corp.) to assign space to each of them.

3V also routes telephone calls made to each consultant's voice-mail number to the extension at the assigned desk. Personal effects are put into the cubicle the day someone is scheduled to arrive. When workers arrive at the office, they consult a kiosk to find their assigned spaces. Each space has a phone, a desk and a network connection, Sohah says, and most people bring their laptops with them.

Having space set aside specifically for hoteling is the norm among the companies surveyed by *Computerworld*. Eighty percent designate space specifically for transients, 70% use the option of putting people in any spare space available and 57% will ask visitors to camp out at the desk of someone temporarily absent from the office.

Setting up Ernst & Young's hoteling system required some effort, Sobah says, but wasn't difficult. Each office and cubicle had to be wired for a network connection, something that would be done anyway. Ernst & Young bought the hoteling reservation system and upgraded and standardized the switches and voice-mail systems throughout the company. All those expenses were far less costly than paying the rent on office space, says Sobah.

Sobah's experience instituting a hoteling architecture parallels that of other IT managers surveyed by *Computerworld*. The top three modifications managers made to their company's operations to accommodate hoteling were adding network log-on and security procedures (68%), setting up the physical space (63%) and adding telecommunications facilities (45%).

Sobah says Ernst & Young's existing network security was satisfactory; every person needs to provide a user name and password to sign on to the server. But 67% of those surveyed expressed concern about security problems caused by transient workers.

Locking the Door

General Dynamics must meet stringent federal security requirements, says Loccisano, which forced it to get very serious about security for the hoteling facilities. Some of the company's servers and backbones are isolated even from one another and invisible to the outside world. Nevertheless, Loccisano says, he supports a lot of visitors. To adhere to the company's security protocol, visitors aren't allowed unrestricted access to the network.

To get into corporate resources, a visitor must first receive an extranet account from corporate IT. The account restricts the servers a user can access. The company's use of fixed, not dynamic, IP addressing resolves many potential security problems because "we know exactly what's on each of those computers," says Loccisano.

Further security measures limit the amount of time someone can stay connected. Employees have generous time limits while workers from General Dynamics' partner companies receive much less. Software also monitors how often someone logs on.

Gold says hoteling will continue to evolve. Today's laptop-toting employee will insert smart cards into any computer within the organization. Once an identity is established, the system will open that person's individual files and e-mail and unlock any spplications he's authorized to use.

It's the ultimate in hoteling: no fixed office, not even a fixed computer. But it's not an easy architecture to develop, warns Gold. "The software model hasn't been built with that kind of capability," he says.

Johnson is a contributing writer in Seattle. Contact her at omyhelen@pobox.com.

Case Study

The Goal: Gargulio Inc. wanted to provide network access to salespeople and managers from other company offices.
Greatest Benefit: Convenience for mobile workers. Putting them in a special office when they're on-site makes it easy to locate them.

Salespeople at tomato grower Gargulio really have no fixed address; they tend to work wherever the crops are ripe. It's rare to find one with a fixed office at the company's headquarters in Naples, Fla.

Information systems director Roger Glenn and network administrator Monti Ehrig built a hoteling work space for transient colleagues that lets them log easily into mission-critical servers and corporate applications.

The hoteling office supplies the minimum tools necessary: a network connection, a phone line and a printer. Gargulio runs its own telephone system, so it costs next to nothing to add users.

Gargulio did buy additional software, including Client Access from IBM and Rhumba from Cupertino, Calif.-based NetManage Inc., for users' laptops. Each person has to have a user name and password to log on to the network; an additional log-on process guards access to the company's AS/400.

All in all, it was a simple, inexpensive solution, and a popular one, says Glenn. The Naples office is used every day, and the packing plant in Fresno, Calif., has a similar setup.

– Amy Helen Johnson

Hoteling Not Widespread

Computerworld surveyed 87 IT managers at large corporations to find out just how far the practice of "hoteling" – providing network access and work space to workers who are only temporarily on-site – has penetrated into U.S. businesses. The majority say they accommodate telecommuters or employees from other offices regularly, and roughly half say they also supply networking capabilities to contractors and part- or shared-time employees. And almost one-third accommodate nonemployee visitors, auditors and field engineers while they're in the office.

What benefits have come from providing temporary network access and work spaces to visiting employees, contractors and guests?

62%	Increased employee satisfaction
59%	Facility cost savings over providing permanent space for each worker
30%	Equipment cost savings
20%	Technical support cost savings
7%	Convenience
6%	Enhanced productivity
6%	No benefits

What are your biggest concerns about giving temporary network access to visiting employees, contractors and guests?

68%	Security will be compromised
43%	Visitors will require disproportionate amounts of technical support
37%	Temporary worker resources will be difficult to administer
23%	Difficulty justifying the expense of maintaining office space/equipment
13%	Have no concerns
9%	Permanent workers will resist the program
1%	Contractor will steal IT org charts to lure workers away

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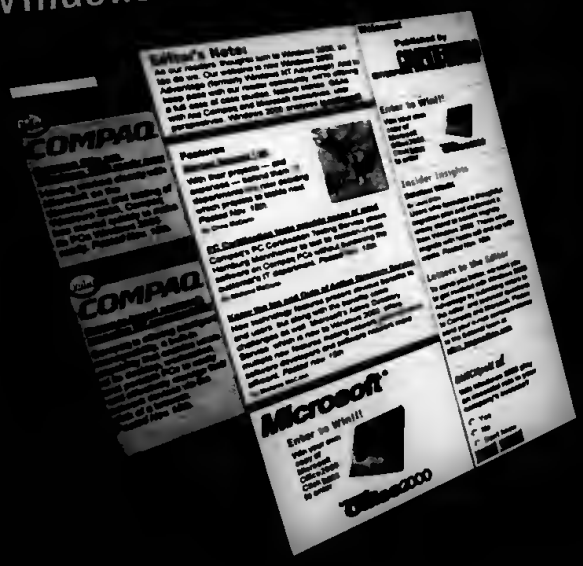

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A Bandwidth Multiplier From Expand Networks

Start-up promises to squeeze more bandwidth out of existing WAN pipes

BY DAVID ESSEX

CHUCK FARNER had a bandwidth problem, brought on by graphically rich applications and an increasing reliance on the Internet. Bandwidth management was fast becoming a full-time occupation at his company, Wyle Electronics, and Farner is a man with very little spare time.

It's no surprise, then, that he leaped to acquire Expand Networks Inc.'s plug-and-play bandwidth management system. Since October, Expand's Accelerator 4000 appliance has fit nicely alongside Wyle's Cisco Systems Inc. routers, providing a confirmed 300% increase in bandwidth.

Farner says the Accelerator is cheaper than the usual alternative of leasing more T1 lines and is more effective and easier to manage than other optimizatioo schemes. "I can't think of the last time we needed to worry about [our accelerators]," he says.

Expand Networks' name aptly describes the missioo of this 3-year-old start-up. Its products were designed for hands-off bandwidth conservation that extends existing wide-area network resources.

Bandwidth Usually Expensive

The time-honored way tn expand network bandwidth is tn aimply add T1/E1 leased connections. That's a $2,000-per-month proposition domestically, and far more expensive when extended overseas.

But putting two $10,975 Accelerators between routers on your existing private lines can virtually quadruple your pipe — much better than adding a new T1 line.

Wyle's Accelerators yielded "about a 13-month [return on investment]," Farner says of the setup linking his company's headquarters in Irvine, Calif., and a distribution center in Phoenix. The Accelerator optimizes data transmissions between routers, analyzing packets to determine which data can be cached. Once cached, a bit-sipping pointer to the data is transmitted instead of the entire file.

The device also separates protocol information, such as headers, and uses algorithms to reduce their size, a process called vertical data analysis (VDA). Adaptive compression, whicb assigns different types of compression algorithms to reduce data size, handles whatever selective caching and VDA can't optimize.

The Accelerator 4000 also employs quality-of-service prioritization to give special handling to delay-sensitive data, such as voice-over-IP traffic.

Expand co-founder Talmon Marco says mainframe applications see the biggest bandwidth jumps — up to 400% — and the performance of Internet data cao increase by as much as 150%. The technologies are less effective for videoconferencing, yielding performance gains of less than 10%.

Farner says Expand Networks responded to Wyle's request for a feature that keeps T1s up at their old bandwidth if the Accelerator fails. "Not only do we have extra input, they ask for it," Farner says.

International Opportunities

Analysts characterize Expand Networks as a dominant niche player that must stay ahead of trends that could offer better handwidth options. The company has profitable opportunities in developing markets like Russia and Latin America, wbere T1 alternatives such as Asynchronous Transfer Mode are scarce, says Tere Bracco, a principal at Current Analysis Inc. in Sterling, Va. Bracco says Expand has five years or so until those countries catch up.

Meanwhile, says Bracco, "I don't see a lot of progress being made that obviates the need for the Accelerator 4000. It's there first, it meets a defined need and it's meeting it very cost-effectively."

The Accelerator also offers enhancemeots for private data lines that cross oceans.

Goldeo Lines Ltd., an Israeli Internet service provider, uses Accelerator 4000s oo a domestic E1 line and two overseas lines connecting satellite downlinks in the Boston area and New Jersey. These connections would normally cost $30,000 a month. "We can basically cut the expenses by 50%," explains technical manager Tomer Zaidel, who says attempts to use compressioo built into Cisco 7206 and 7513 routers produced disappointing gains of less than 10%.

The product line's biggest weakness is frame-relay support, which Marco promises by spring. It's a critical missing link, since many customers will turn to frame relay for their next bandwidth fix. Expand also plans to introduce Accelerators with built-in channel service units/data service units to minimize box counts at remote sites. ▶

Essex is a freelance writer in Antrim, N.H.

TALMON MARCO, co-founder of Expand, says mainframe connections achieve the biggest boost from Accelerator 4000

Expand Networks Inc.

COMPUTERWORLD emerging companies

Location: 103 Eisenhower Parkway, Roseland, N.J. 07068

Telephone: (888) 892-1250

Web: *www.expand.com*

The technology: Bandwidth acceleration – a mix of technologies that can quadruple effective bandwidth on private circuits

Why it's worth watching: Dominates market niche for extending bandwidth in countries where broadband options aren't as well established as in the U.S.

Company officers:
- Zohar Pearl, CEO and chairman of the board
- Talmon Marco, co-founder and president
- Nir Kalkstein, chief technology officer
- Ziv Haparnas, vice president of research and development

Milestones: Founded in 1997
Released its first product in September of last year

Employees: 50

Profitability date: 2001

Burn money: $12 million from American and Israeli sources

Products: Accelerator 4000, sold in pairs for $10,975 each

Customers: Enron Corp., Lockheed Martin Corp., Texas Instruments Inc. and Wyle Electronics are U.S. customers. Internet Gold, an Israeli Internet service provider, is a major overseas client.

Red flags for IT:
- Expect labs at 3Com Corp., Cisco and other companies to cook up similar systems for next-generation routers that could lessen the value of Expand's offerings.
- Network providers may offer better bundling and pricing of T1/E1s, cutting into Accelerator's cost advantage.

[the buzz]
STATE OF THE MARKET

Indirect Competition

Expand Networks' Accelerator 4000 appliance is unique in combining selective caching, compression, packet analysis and quality-of-service prioritization to boost effective bandwidth more cheaply than adding leased lines.

Its biggest vulnerability lies with router vendors like 3Com Corp., Cisco, and Nortel Networks Corp. in Brampton, Ontano. "If those big guys wanted to solve the problem the way Expand is, they would go out and do it," says Lance Travis, vice president of electronic business infrastructure at AMR Research Inc. in Boston.

Expand is doing wide-area network-level optimization of private lines, which makes the market niche smaller than it seems at first. FlowWise Networks in San Jose also sells router accelerators, but they're for campus-level Ethernet traffic.

With patentable technology and dominance of its niche, Expand is a natural acquisition candidate, especially for a highly capitalized octopus like Cisco, say Travis and others.

Other options available to network managers facing a bandwidth crunch include the following:

Compression: Expand says it competes most directly with the Stacker compression hardware and software offered with Cisco's routers. But users and analysts say this and other partial compression schemes like JPEG and MPEG offer much lower bandwidth improvement and burden routers with higher overhead than the Accelerator does.

Traffic shaping (bandwidth management or policy-based networking): Traffic shaping lets network administrators balance loads and redirect applications to optimize network performance However, it doesn't add effective bandwidth, and labor costs can exceed the price of a pair of Expand Accelerators, Travis says.

Trunking: Combining multiple physical connections into one logical one can help avoid underutilization of leased lines, but, like traffic shaping, it doesn't add real bandwidth.

Caching: Storing frequently used data in fast RAM can avoid needless drag on the network by transmitting pointers to large files rather than the files themselves. Expand President Talmon Marco says his company could face more direct competition if Web caching companies apply their technology to other kinds of data, like mainframe applications and enterprise resource planning software.

– *David Essex*

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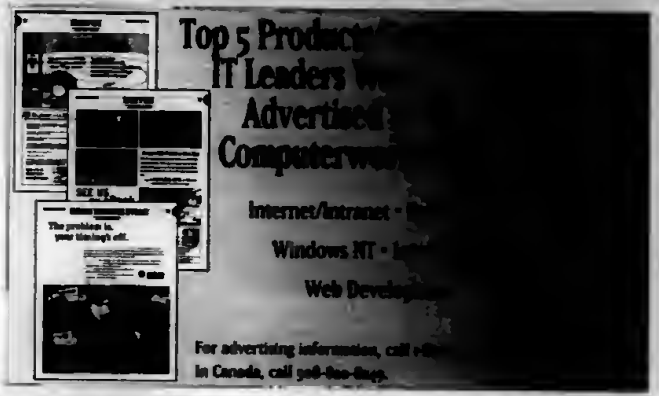

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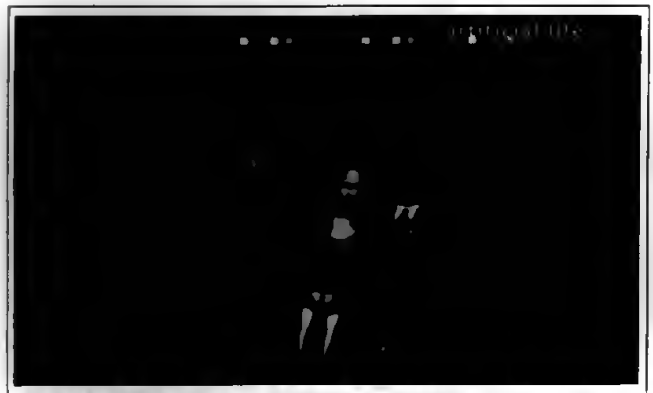

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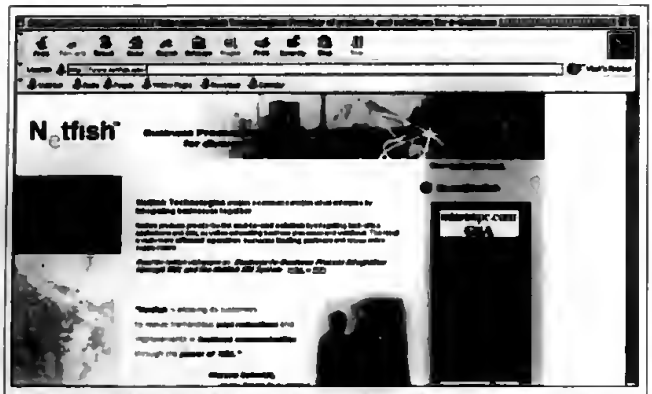

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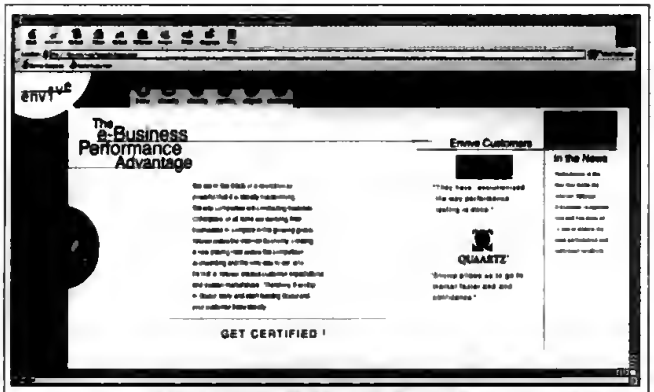

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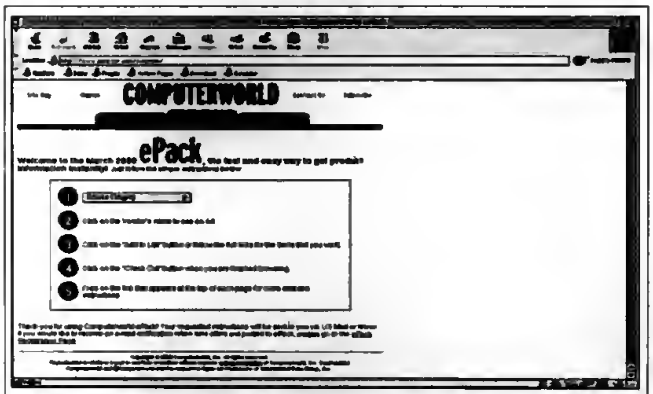

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Sizing up the Telecom Corridor

With companies like Nortel, Ericsson and Northern Telecom in the area, you might assume that Richardson and Plano, Texas, have become a large central office for the telecommunications industry. In many ways, they have. By Erik Sherman

THERE'S NO DENYING that Texas' Richardson and Plano area has an affinity for the telecommunications business.

According to the Richardson Chamber of Commerce, the so-called Telecom Corridor has 70,000 daytime workers in 25 million square feet of workspace. And the North Texas Council of Governments expects that there will be an additional 40,000 jobs in the area by 2010.

Yet an examination of the list of headquarters and branch offices in the region belies a narrow classification. In Richardson alone there are companies like Blue Cross/Blue Shield of Texas, NationsBank Corp. and Perot Systems Corp. Cross a highway into Plano and you add Fina Oil & Chemical Co., Electronic Data Systems Corp. (EDS) and Frito-Lay Inc.

Such a wide variety of industries — from consumer products to energy, services and consulting — means that almost any background can find a home in the area.

Start-up Territory

In addition to the large number of jobs "at big comfortable places," Richardson and Plano host many start-ups, according to Joe Head, executive vice president of ODS Networks Inc., a Richardson-based, $100 million computer security firm.

Richardson is home to STARTech Business Development LLC, a well-known high-tech business incubator that helps with seed funding, strategic planning and contacts with venture-capital firms and local technology companies. Information technology professionals have many options; if one job doesn't work out, there is always another nearby.

Other employment opportunities are within a short distance. According to William J. Rich, CEO of VocalData Inc., a Richardson telecommunications firm, there are major oil companies with beadquarters 5 miles to the south, technology suppliers such as Lucent Technologies Inc. and IBM and insurance companies "strung around."

"It's quite competitive, and the options for those seeking positions are more plentiful than they have ever been," according to Gordon M. Markley, southwest regional recruiting manager at EDS.

Highway Master Communications Inc. has felt the pressure. Robert Lambert, vice president of IT, says his 250-person company is trying to add another seven IT positions this quarter. While other local companies also have a great demand for people, there is a lot of movement from one job to another.

"We've found the market here is volatile enough to fill our needs," Lambert says, noting that his company hasn't needed to bring people in from out of state.

Salaries here are nationally competitive. Lambert says he has found that Visual Basic programmers with some relational database modeling experience without a specific industry background can earn between $50,000 and $65,000. Project managers can demand $70,000 to $85,000, "depending on years experience and knowledge in your industry." According to ODS Networks, IT salaries are on the "middle high" end of the scale.

The money can look even better, though, when considering the cost of living. The average sales price of an existing home in Plano is $161,300. Older home prices are depressed by the amount of new construction, meaning that it'a possible to get a bargain, like the house Head sold last year: 4 acres with a creek, a city park next to the back yard, house and an old barn for $183,000.

There is no income tax, although the sales tax tops 6% and property taxes can be high. The taxes on Head's old house were $2,900. Someone with a $500,000 house in another town reported paying about $7,000 in taxes, while a house worth half that amount in another location still had a tax bill of $6,500.

Sherman is a freelance writer in Marshfield, Mass.

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IT SKILLS IN DEMAND

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- Columbia Medical Center of Plano
- Countrywide Funding Corp.
- Electronic Data Systems Corp.
- LM Ericsson Telephone Co.
- Frito-Lay Inc.
- J. C. Penney Co.
- Plano Independent School District
- Texas Instruments Inc.

LARGE EMPLOYERS IN RICHARDSON

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- Hewlett-Packard Co.
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- Nortel Networks Corp.
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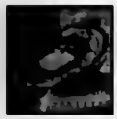
by Carole Hedden



Amazon.com
Seattle, WA

Among the dot-com companies at the world's Amazon.com clearly is the organization where new things happen daily, and where the frontier is someplace underfoot. "We're looking for people to sharpen that online experience for our customers," says H.B. Siegel, director of media technology. "This is a vertically integrated operation, where we need people to work in rich media on every aspect of the customer experience."

While reticent to reveal what's planned for the coming year, Siegel says the person going to work at Amazon.com will put his hands on everything. "We need people with a rich media interest."

"We're doing some really exciting things to improve the online shopping experience," says Siegel. "For instance, we've added a new feature to our review capability. Some of our reviewers provide more useful and credible information, so we've found a way to aggregate the most useful reviewers – to provide a review of reviewers so to speak. Amazon.com is a leader in this area of developing the community arena."

Siegel says Amazon.com stands alone as an employer. "This is a place where you'll look forward to coming to work," he says. "There aren't many jobs like that, and it's great to be excited about what you're working on. We have a unique position in [illegible] and you can be part of that [illegible] and we're using great te[illegible]

F[illegible] Siegel believes Amazo[illegible] "We've got to go beyond the [illegible] a mo[illegible] ment," he says. "Our problems are [illegible] solve in the future at a fraction [illegible] are creating new applications because [illegible] it's because we are the first."

Generally, [illegible] small groups of multiple skill sets [illegible] set of deliverables. The only mistake [illegible] ng," adds Siegel. "We make sure people understa[illegible] rements and then set them loose. It's a little bit [illegible] triage – we work hard and then move on. The organ[illegible] coalescing around needed skills more than [illegible] matrix or hierarchy."

Breakthrough Software
San Jose, CA

Breakthrough Software is a breakthrough company working off venture capital to establish a new software approach to enable e-commerce. Using a proprietary approach to Web-enabling software, Breakthrough Software is helping small businesses grow and offer their wares across the Internet.

Bob Walker, staffing manager, says the best example of the company's target market is small businesses. "That's who we cater to – helping smaller businesses set up their own e-commerce sites using our storefront models," he explains. "If the business is stronger, we have the software that enables you to further customize your e-commerce ability, building your business and your storefront."

Walker says attitude is the number one attribute he's looking for in hiring new employees. "There are lots of people in this business who are capable of doing the job," he says. "But this is about more than skills. We need people with an attitude about learning and helping businesses grow. We need Internet software-based skills but also the ability to deliver on our promise."

"As a start up we need to hire sharp people and ramp up quickly," adds Walker. "You have the flexibility to customize the opportunity and what the company will become. You'll have to do many different jobs, and people tend to embrace that because it prevents your work from becoming mundane."

Lawson Software
St. Paul, MN

The East Coast and West Coast may lay claim to the high tech frontier, but here in St. Paul, Lawson Software is carving out new territory, too. "We are an enterprise e-business application provider organization," explains Amy Kadow Fafinski, director

human resource recruiting and staffing. "We provide solutions whether it's financial, human resources or supply chain management/supply chain.

Through Lawson Insight 2 some of its latest analytic applications, Lawson has gone the next step – to computerized decision making. "This is a business management application that allows executives to make decisions based on information they extract using this software," says Fafinski. "It's a robust analytics solution that allows people to look at information from different directions, not just through a flat spread sheet for instance."

Lawson plans to hire about 550 people in 2000, up about 33 percent. Positions are open in regional offices throughout the United States in major metropolitan areas as well as their global facilities. Most research and development work does take place in the corporate offices in St. Paul.

"Because we offer a variety of services there is a lot of opportunity," says Fafinski. "We want people who have previous software industry development experience, who can manage multiple projects, and who can change direction at a moment's notice. Many times we pursue multiple paths to respond to a single requirement. And, we're looking for people who believe in customer satisfaction – that's our business."

The company is an open systems development organization. "That's attractive to most people," says Fafinski. "We also are the first enterprise software to be Web deployable. We've always focused on new ways of doing things and that's what keeps people excited about working here. The languages you've used in developing software are important, but we're more interested in your creativity and work style."

Career planning occurs through the company's performance management process, and Lawson Software University provides technological course work and exploration. In addition, employees take part in customer focus groups, providing them with first hand information on the customers' future needs and thus the skills and capabilities that will be required.

"Sometimes people think of Minnesota in hoaky quaint terms, but most people who come to Lawson are truly amazed at how helpful and nice people are. There are no pretenses," Fafinski adds. "When you consider our competition, who are up to 20 times the size of Lawson, you'll find that our work environment and what Lawson offers is very competitive."

Nikon USA

Melville, NY

For more than seven decades Nikon has been a standard bearer in imaging technology. In more recent years, the technology has expanded, today encompassing a growing number of software applications that enable Nikon's rich history of engineering know-how.

"There are big plans for the new century," says Barbara Ponzo, employment specialist for national recruiting. "We have a large number of jobs being driven by the digital field as literally thousands of new digital cameras are on backorder. The consumer demand is tremendous. Nikon was recently awarded the 'Excellence in Imaging Award' by *Popular Science* magazine and Digital Focus for our CoolPix 950 consumer digital and D1 professional Digital SLR cameras."

Along with the D1 camera, the professional photographer receives a copy of the software that enables him or her to fully utilize that photograph.

However, photography isn't the only opportunity. "We have a number of different technologies at work," adds Ponzo. "This allows the software professional to avoid stagnating."

Chris Marshall, software development manager for Nikon's Photo Division, says, because Nikon makes the best digital cameras and film scanners in the world, you'll be working on some of the coolest stuff there is. There are good toys here to play with."

The technology used by the Photo Division as well as the Instruments Division is based on both Windows and Macintosh use. "We have push unlimited potential for leadership opportunities," says Marshall. "Software is the basis of image quality so the whole camera structure is moving behind software. After all, our customers look at the digital camera and the software as an integrated unit so the software has to be taken every bit as seriously as the camera itself."

"Our strategy is to hit new technologies at the beginning of the wave and as competitors catch up, we have already turned our attention to the next new technology, to the future."

Rick Banister
- Sesame Technology

Rich Gruskin, who heads software engineering for scientific and technological instrumentation, says his group continues to grow as the company expands its offerings for scientific and technological instrumentation. "We're writing the applications for a variety of instrumentation equipment," explains Gruskin. "For instance, we recently began work on producing the software that goes with Nikon hardware for inspection equipment used in an Intel fabrication plant. We also have a line of surveying products. The software provides for the automatic download of data from Nikon field instruments for a building site, loading into a CAD system and then drawing the measurements. It's exciting work, where we write applications that make things move. The future will see a lot more with robotics and machine vision."

Marshall and Gruskin agree that the Nikon brand name sets the company apart from other employers. "Here, you can work on things you'll be proud of, something that people ooh and aah over," says Gruskin. Ponzo agrees, saying that the company is looking for people who possess the desire to learn, who not only have the technical schooling, but who are ready to work on worldwide Nikon teams, "ready to be excited about our customers' needs."

"Here, you can work on things you'll be proud of, something that people ooh and aah over."

Rich Gruskin
- Nikon USA

Sesame Technology

Scotts Valley, CA

While a significant portion of the IT industry chased Y2K, Sesame Technology stuck to its vision – providing successful trend setting business applications for the IT divisions of growth-oriented companies.

"We've built our reputation on rock solid execution and by leading the trends," says corporate vice president Rick Banister. "We were early in becoming Oracle specialists, especially in conjunction with the Web, and we have continually built on this."

"Our recent focus has been with data warehousing and e-commerce. Our strategy is to hit new technologies at the beginning of the wave and as competitors catch up, we have already turned our attention to the next new technology, to the future." With this strategy, Sesame Technology devotes serious talent and time to developing implementation protocols for early adopters of technology. "We tend to invent the methodologies," Banister says. Most recently, the company has deployed Web-based versions of applications, building demand for people who can combine Oracle and Java based skills with Web skills.

"We look for people who have seasoned experience in the industry. We're looking beyond the buzzwords and the languages you can code to your ability to solve problems. That's the difference between a programmer and a software developer and it's most important suit of all – solving real world problems."

Tightly knit teams develop Sesame's projects. "That allows you as a member to connect with the best skills imaginable," he says, "because we're developing cutting edge state of the art programming."

Banister says that while the company remains a privately held organization, employees are highly motivated by the ability to stock options. "We want people to participate in decision making. But there is a serious absence of [illegible]."

Syntra Technologies

New York, NY

In the world of [illegible] development, Syntra Technologies has carved out a niche for itself by creating real time and online applications that provide for financial, logistical and regulatory exchange around the world. The company provides software products to a broad range of companies, from the traditional Fortune 1000 to dot-com start-up e-commerce operations. Throughout 2000, Syntra will be rolling out a suite of products that are Web based.

The company merged in early March with International Software Management in the United Kingdom, providing an overall presence in North America, Latin America, Asia, Western and Eastern Europe. Syntra now has a global footprint in key markets that will address a huge appetite for e-commerce solutions.

It's a long way from how the company started. Syntra's founders were at Columbia University in graduate school working on a thesis that addressed the concept of export automation. The project became a company that today is the market leader in global commerce management and export/import automation.

"We're hiring at a steady rate and sending people to our customers to help them set up these new applications that connect buyers and sellers across borders and through the Internet," adds Teri Capema, manager of human resources. "We're looking for talented, seasoned technology experts who are highly motivated and want to make a difference. Syntra is defining its space and there's great opportunity for career development and cross functional training."

Capema says that learning is a crucial part of the company's operation. "As you work, you will be developing skills," she says. "We do have a job rotation system in place and cross training. We operate a highly flexible organization, which provides a great opportunity for people who want to build a skill set that is as broad as it is deep."

[redacted]

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Software Engineers wanted by investment banking company in Greenwich CT. Must have a Master's in Computer Science or Electrical Engineering and 3 months experience designing, developing and implementing back office software systems for a financial services entity including systems used to trade and price complex fixed income instruments utilizing Unix, C/C++, Perl, TCP/IP and IPC protocols, SQL and Sybase. Respond to Dave MacWilliams, Greenwich Capital Markets, Inc., 600 Steamboat Road, Greenwich, CT, 06830

Programmer Analyst -

Jackson MS - Analyze reqs, design, test & implement mfg mgt sys using NATURAL, Natural Construct, ADABAS & Visual Basic. Req Bach in Comp Sci/Data Processing, Math or Engr & 5 yrs exp M-F 9AM-5PM, 35 hrs/wk, $39.00/hr. Send resume to MS State Emp. Service, 5659 I-55 Frontage Rd, Jackson, MS 39236-3349, JO# MS2887121

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The successful candidate must have strong technical experience with medium to large UNIX environments running Oracle applications, including HP-UNIX as well as Solaris. In addition to an advanced degree in computer science and 8+ years of experience with Oracle, you will have demonstrated leadership abilities, the ability to work effectively with business owners, IT management, and IT-EM staff, and the ability to design, tune and troubleshoot an Oracle and SQL Server environment. Must be familiar with UNIX shell programming, SQL and SQL tuning.

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Interested candidates should send resume, referencing Job # GEPS-211292-ANO57, to: GE, Suite 2N, PO Box 549251, Waltham, MA 02454-9251; E-mail: opportunities@gecareers.com. For information about our company, see our Web site at www.gepower.com. We are an Equal Opportunity Employer.

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Senior Programmer/Analyst (Westport, CT) Analyze design and develop Commodity Trading System. Solid knowledge of Oracle database Oracle PL/SQL, Borland Delphi, C/C++ MS in computer + 2 year exp or BS in computer + 5 year exp $75K/yr plus good benefit Send resume to HR, Triple Point Tech 301 Riverside Ave Westport, CT 06880

Software Engineer wanted by Computer Services Co in Stamford CT Must have Masters in Comp Sci Comp Engg or Comp Info Systems & 3 mos exp analyzing dsgng & dvlpg comp applics using Visual Basic & SQL with ACCESS database in Windows envrmt & dvlpt of web applics using HTML Respond to HR Dept Secada & Co., 1500 Summer St, Stamford, CT 06901

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Compaq Computer Corporation has openings in its Georgia offices for varying levels of Software Specialists. Requirements include a Bachelor's/Master's in a computer-related field, depending upon position Some positions require industry experience If interested and qualified send resume to Human Resources, Compaq Computer Corporation, 40 Old Bolton Road, OGO1-2/12V, Stow, MA 01775.

Software Engineer-3D vision processing sought by Industrial Automation Firm in Cambridge, MA. Must have MS in Electrical or Comp Engg or closely related field

Respond to: HR Dept 800, Intelligent Automation Systems, Inc., 149 Sidney St, Cambridge, MA 02139

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Systems Manager wanted by Database Mktg/Telemktg Firm for job opening in Tamarac, FL Must have Bach in Comp Sci/Engg

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Fundtech Corporation
157 Technology Parkway, Suite 100
Norcross, Georgia 30092

Senior Software Engineer – Develop and maintain large manufacturing application software in C++ using Object Oriented Design Programming UI and application code in Windows NT using MSVC++. Design, analyze, and implement algorithms for planning and scheduling. Perform detailed analysis of assigned tasks and translate designs into functional and efficient code. Perform bug analysis and fix bugs in areas of specialization in a timely manner. Act as team leader for some functional areas within projects. Requirements include a Master of Science degree or equivalent in Engineering or a related field and two years experience in job offered or related field of commercial software development. Experience must include planning and scheduling in manufacturing engineering. Thorough knowledge of Object-Oriented programming using C++, Windows NT, or UNIX. Applicants must have unrestricted authorization to work in the United States. Salary $64,000/year, 40 hours/wk. Respond with two copies of resume to Case #19984054, P.O. Box 8968, Boston, MA 02114.

Full time Manager of Software Development. Responsibilities include: Manage the design, development and implementation of data base architecture and client/server systems supporting banking and financial industry software; utilizing distributed computing architecture, object oriented brokers and middleware computing architecture, direct design of database libraries utilizing Oracle Pro C and SQL; manage design and development of UNIX- and Windows NT-based Sun SPARC distributed database applications in C++ and Java; direct analysis and evaluation of logical database design concepts and management of their conversion into physical databases to support distributed database applications; manage the recruitment, hiring, firing and assignment of professionals and support personnel; and manage 6-8 Software and Hardware Engineers and other computer professionals. Must have a Master's degree or its foreign equivalent in Computer Science or a related field and three years of experience as a Software Engineer, Systems Analyst or a related occupation or a Bachelor's degree or its foreign equivalent in Computer Science or a related field and five years of progressive experience as a Software Engineer, Systems Analyst or a related field. Must have proof of legal authority to work in the United States. Salary: $66,789 and up, commensurate with experience. If interested, submit resume in duplicate to:
Mr. Michael Hyman
Fundtech Corporation
157 Technology Parkway, Suite 100
Norcross, Georgia 30092

Full-time Database Manager. Responsibilities include: manage the architecture, planning and installation of Oracle databases on UNIX and NT-based systems in a production environment primarily for financial institutions; manage the planning of communications connections to the UNIX and NT systems; manage the installation and configuration of high availability for HP, SUN and IBM AIX; manage the planning, requisition and ordering of new equipment; assess new technologies; ensure that adequate documentation exists to operate and maintain systems; implement and execute capacity planning, modeling, processes and tools; single point of failure analyses and implement solutions; perform and tune recommendations; coordinate the implementation of new releases/versions of systems software and the layout of data on disk drives for maximum performance; prepare project plans and system installations; install software packages; maintain 24x7 operation; and participate in disaster recovery planning and testing. Must be proficient in Oracle Enterprise Edition 8 and 8i, UNIX and NT operating systems, Java, C++, and Erwin, BEA WebLogic Enterprise, performance monitoring tools, and shell scripts. Must have a Master of Science degree or foreign equivalent in Computer Science or related field and three (3) years of progressive experience as a Database Administrator or related position, or a Bachelor of Science degree or foreign equivalent in Computer Science or related field and five (5) years of progressive experience as a Database Administrator or related position. Must have proof of legal authority to work in the United States. Salary: $56,000 and up, commensurate with experience. If interested, submit resume in duplicate to:
Mr. Michael Hyman
Fundtech Corporation
157 Technology Parkway, Suite 100
Norcross, Georgia 30092

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- **Senior Business Analyst** (ERP Applications) – SAP (MM, SD, FICO & PP), Baan & Triton. M.S. comp. Sc./rel. field/MBA & 2 yrs. exp. in job offered. $85K/benefits.
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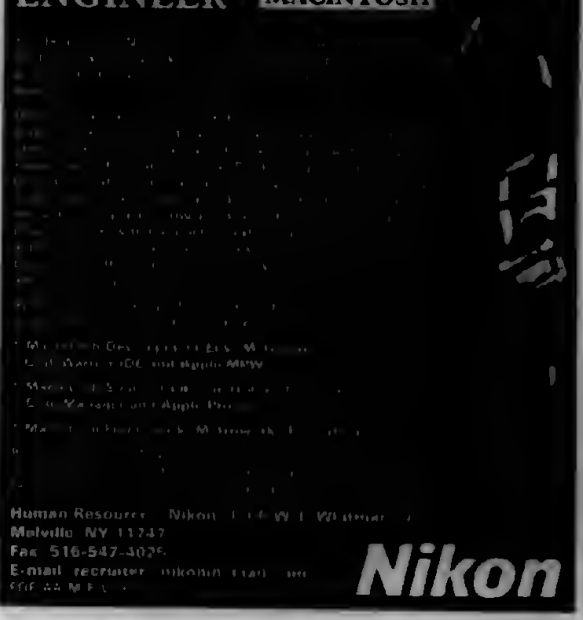

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Senior Software Engineer Positions to design develop and implement software systems to determine feasibility of design and directs software testing procedures programming and documentation Work involves extensive travel and frequent relocation Must have one year of experience in job offered or as a computer professional as well as 1 yr of skills in one of the following fields SAP Baan or PeopleSoft Master s degree in one of several limited fields Computer Sci/Apps Eng Chem Math or Physics or scientific or business related field Will accept Bachelors degree with five years of progressive experience as computer professional Salary $105 000 per/yr 40 hrs/wk 9 00-5 00 p m Please submit resumes to Jaime Lopez Rapidgm 4400 Campbells Run Road Pittsburgh PA 15205

Senior Software Engineer Positions to design develop and implement software systems to determine feasibility of design and directs software testing procedures programming and documentation Work involves extensive travel and frequent relocation Must have one year of experience in job offered or as a computer professional as well as 1 year of skills in one of the following fields Computer Sci/Apps Eng Chem Math or Physics or scientific or business related field Will accept Bachelors degree with five years of progressive experience as computer professional Salary $75 000 per/yr 40 hrs/wk 9 00-5 00 p m Please submit resumes to Jaime Lopez Rapidgm 4400 Campbells Run Road Pittsburgh PA 15205

Programmer Analyst

Design and develop REALTIME Data Acquisition software and Graphical User Interface presentation software for remote control systems in Windows NT and OS/2 platforms using tools such as Win 32 SDK MFC Visual C++ Demonstrated ability using external devices such as X-rays DCS/PLC PLCs Systems Scanners $78,000/yr 40 hr/wk 9 a m - 5 p m Must have 5 yrs exp (or 5 yrs Exp in related occupation of Software Engineer) and B S in Comp Sci eng rel field/equiv Send 2 resumes Case #19983818 PO Box 8968 Boston MA 02114

Windows NT Security Software Engineer to design code & implement internet security software using multi-threaded & concurrent programming multiasblogers network & internet programming techniques & internet & networking protocols Required Bachelor's or foreign deg equiv in Computer Sc IT or EE with 2 yrs exp as Windows NT Security Software Engineer or 2 years software design & development; experience must include 2 yrs of C or C++ system and security-based programming Windows NT development & TCP/IP network programming Must have implemented a TCP/IP network service or daemon Respond to Ms Margaret Pagues, Internet Security Systems, Inc., 6600 Peachtree Dunwoody Rd., N E 300 Embassy Row Suite 500 Atlanta, Georgia 30328

Software Engineer Positions to design develop and implement software systems to determine feasibility of design and directs software testing procedures programming and documentation Work involves extensive travel and frequent relocation Must have 1 year of skills in field Bachelors degree or foreign equivalent in Computer Sci/Apps Eng Chem Math Physics or a scientific or business related field Salary $66 000 per/yr 40 hrs/wk 9 00-5 00 p m Please submit resumes to Jaime Lopez Rapidgm 4400 Campbells Run Road Pittsburgh PA 15205

SOFTWARE ENGINEER

To design plan schedule and develop projects using MS SQL server and/or Oracle Visual C++ and Visual Basic for user interface Job requirements Bachelor's Degree in Math Engineering Science Computer Science or Electronics and 3 yrs Exp
Contact **resumes@universal-sw.com or 978-244-9510. Universal Software Corporation, 100 Apollo Dr. Chelmsford, MA 01824**

SENIOR APPLICATIONS PROGRAMMER Develop software elements that drive basic game mechanics of a project Develop design document implement test and debug code using modular and structured coding techniques Responsible for following systems and subsystems through the duration of a development project Assist in determination of tasks and milestones for game projects Incorporate technology from Technology Department and code elements from other company projects whenever possible Maintain working knowledge of development systems debuggers and techniques in the field Test company's and competitors products Development uses C and C++ on PC and Macintosh platforms Required B S in computer science or related OR 2 years experience as games programmer All candidates must provide a sample program consisting of a first person action game in a 3D environment with at least 5 000 textured polygons with gouraud shading in view and rendering at at least 15 frames per second on a PPro 200 PC platform or equivalent $51 000/yr + 40 hr/wk 9 00 AM to 5 00 PM Two copies of resume to M Brooks File C101372 DWE-ALC PO Box 7972 Madison WI 53707-7972 Reference file #C101372

Senior Software Engineer

for related occupation of Software Engineer/Project Manager) Analyze user requirements and design and develop client/server business applications on multiple platforms using Object Oriented techniques Knowledge analyzing user requirements and developing Software Requirements Specifications (SRS) Knowledge designing and developing Object Oriented Graphical User Interface (GUI) applications using C++ on multiple platforms such as MS-Windows and UNIX Knowledge designing databases for business applications and integrating them to the front end $60 000/yr 40 hr/wk 9 a m - 5 p m Must have M S in Comp Sci or related/equiv Send 2 resumes Case #19983086 PO Box 8968 Boston MA 02114

SOFTWARE ENGINEER

Software engineer to design develop and test computer programs for business applications analyze software requirements to determine feasibility of design direct software system testing procedures using expertise in Internet Information Server (IIS) Java and Swing Requirements Master's Degree or equivalent in Computer Science or related field and one year of experience as a software engineer or computer programmer knowledge of Internet Information Server (IIS) Java and Swing
Salary $66,000/year Working Conditions 8 00 A M to 5 00 P M 40 hours/week involves extensive travel and frequent relocation
Apply Mr Clement Pezzella Uniontown Job Center 32 Iowa Street Uniontown PA 15401 Job No 1030321

SOFTWARE ENGINEER

Software engineer to design develop and test computer programs for business applications analyze software requirements to determine feasibility of design direct software system testing procedures using expertise in PowerBuilder Sybase C and Erwin Requirements Bachelor's Degree or equivalent in Computer Science or related field and two years experience as a software engineer or computer programmer knowledge of PowerBuilder Sybase C and Erwin Salary $66,000/year Working Conditions 8 00 A M to 5 00 P M 40 hours/week involves extensive travel and frequent relocation Apply Mr James Macker, Beaver Falls Job Center 2103 Ninth Ave, Beaver Falls PA 15010 Job No 7060468

Analyst/Programmer Analysis of user requirements of logical operations system design coding and testing of system with Synon CASE (Computer Aided software Engineering) tool Requires two years experience as an analyst/programmer including one year experience in Synon application development tools (Synon/2E or Obeydan) Must be willing and available to relocate to work sites throughout the US on serial assignments of three to ten months duration 40 hrs/wk M-F, 8-5 $104,000/yr Job Site Various locations Interview Larkspur California Send ad and resume/letter of qualifications to Job # LCO 30093 PO Box 269065 Sacramento, CA 95826-9065

Software Engineer (Roswell GA)–Design develop implement and test People Soft HRMS and Financials software Responsible for conversion programs, interface program and production support Work with SQR Reporting Crystal Reports, Customization and Flexible Processing Competitive salary Req MS in CS plus 2 yrs exp in job offered

Resume to Sachin Patel PRICS, 1144 Canton Street, Ste 204 Roswell, GA 30075

Junior Programmer Alington Hghts, IL Develop software application progs utilizing Graphic User Interface (GUI) technigs as C++ & Rtnl dbase mngmnt (RDBMS) software like Oracle or Sybase & provide technical & tech sup for applications developed Asst sr programs & team leads in analyzing & designing applicable user interface & back-end progs & info gathering mechnsm Coding & debugging C++-based progs based on pre-defined specs Assc in Computer Science w/ 2 yrs exp 40 hrs/wk, 8AM-5PM, $36,981/yr Apply V-ll, 22158-B AN EMPLYR PD AD NO CALLS PLS! Send 2 resumes & cover ltrs to Leonardo Belasa, IL Dept of Employmnt Security, 401 South State St, 7 North, Chi, IL 60605 Must have proof legal authority to work permanently in U S

Senior Software Engineer Positions to design develop and implement software systems or determine feasibility of design and directs software testing procedures programming and documentation Work involves extensive travel and frequent relocation Must have 1 year of skills in one of the following fields SAP, Baan or PeopleSoft Master's degree in one of several limited fields Computer Sci/Apps Eng Chem Math or Physics or scientific or business related field Will accept Bachelors degree with five years of progressive experience as computer professional Salary $100,000 per/yr 40 hrs/wk 9 00-5 00 p m Please submit resumes to Jaime Lopez Rapidgm, 4400 Campbells Run Road Pittsburgh PA 15205

SOFTWARE ENGINEER

To design plan schedule develop customize data using SAP R/3 and ABAP-4 programming Exp in systems architecture product design data analysis in a client server environment Proven ability to upgrade and test client software generate interactive reports using tools like SAP Scripts and ABAP-4 Query Customize Master Tables and BDC Experience in menu painter and screen painter Proven ability with SAP EDI ALE and IDOC concepts Understanding of other functional modules is an added advantage Travel and relocation is a must Bach Degree in engineering computer science or related science field with min 2yrs Exp
Contact **resumes@universal-sw.com or 978-244-9510. Universal Software Corporation, 100 Apollo Dr. Chelmsford, MA 01824**

Software Engineer Positions to design develop and implement software systems to determine feasibility of design and directs software testing procedures programming and documentation Work involves extensive travel and frequent relocation Must have 1 year of skills in one of the following fields SAP Baan or PeopleSoft Bachelors degree, or foreign equivalent in Computer Sci/Apps Eng Chem Math Physics or a scientific or business related field Salary $80 000 per/yr 40 hrs/wk 9 00-5 00 p m Please submit resumes to Jaime Lopez Rapidgm 4400 Campbells Run Road Pittsburgh PA 15205

SOFTWARE ENGINEER

Software engineer to design develop and test computer programs for business applications analyze software requirements to determine feasibility of design direct software system testing procedures using expertise in PowerBuilder Sybase and C Requirements Bachelor's Degree or equivalent in Computer Science or related field and five years experience as a software engineer or computer programmer knowledge of PowerBuilder Sybase and C Salary $66,000/year Working Conditions 8 00 A M to 5 00 P M 40 hours/week involves extensive travel and frequent relocation
Apply Ms Barbara Cole, Greene County Team PA Career Link 4 West High Street, Waynesburg, PA 15370 Job No 1030331

Software Engineer Positions to design develop and implement software systems to determine feasibility of design and directs software testing procedures programming and documentation Work involves extensive travel and frequent relocation Must have one year of experience in job offered or as a computer professional as well as 1 year of skills in one of the following fields SAP Baan or PeopleSoft Bachelors degree, or foreign equivalent in Computer Sci/Apps Eng Chem Math Physics or a scientific or business related field Salary $85,000 per/yr 40 hrs/wk 9 00-5 00 p m Please submit resumes to Jaime Lopez, Rapidgm, 4400 Campbells Run Road, Pittsburgh, PA 15205

SENIOR SOFTWARE ENGINEER

Project lead with min 2yrs industry experience to design, develop and implement software applications using C C++ SDK, MS SQL server and/or Oracle and UNIX Job requirements Master's Degree or equivalent and 2 yrs Exp
Contact **resumes@universal-sw.com or 978-244-9510. Universal Software Corporation, 100 Apollo Dr. Chelmsford, MA 01824**

PROGRAMMER/ANALYST

To design, plan, schedule and develop projects using MS SQL server and/or Oracle, Visual C++, and Visual Basic for user interface Job requirements Bachelor's Degree in Math Engineering, Science, Computer Science or Electronics and 2 yrs Exp
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Associate Software Development Engineer

Sought by Locomotive Mfr in La Grange, IL. To analyze systems/ware reqmts using Cprgmg language Must have Masters in Eng or Comp Sci.

Respond to Ref# emd 011999013 email: teresa.m.bruhns@gm.com, GM-EMD 9301 W 55th St., La Grange IL 60525. EOE

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Candidates must be willing to relocate Infinite offers Competitive salaries Please send resume to Career Opportunities, Infinite Computing Systems, 230 Second Street SE Suite 214 Cedar Rapids Iowa 52401

SENIOR SOFTWARE ENGINEER

Lead small to large project plans, schedules and priorities; oversee overall system spec. Architect, develop functional and design specifications, code (bldg) and test subsystems. Provide technical guidance, identify project dependencies; request spec. clarifications and assists in resolution of critical issues, determine equipment needs and manage testbed resources. Resolve all bugs and problems in a product area. Strong lead for complex system problems and product functional and design specifications, big projects. Develop products in a C/UNIX environment with specialization in Telecom Switching Software development. 10 yrs wk $80,000/yr Bachelors degree in Computer Science or Foreign equivalent plus two years experience in job offered or in Systems Designer Telecommunications. Must have demonstrated knowledge of UNIX C C++ Switch Based Telecommunications Intelligent Network Standards & Protocols OS Platform Products Communication protocols SS7 ISDN ASN 1 CSI and Bellcore AIN 0 1 and Telecom Environment.

Must be US citizen permanent or lawful temporary resident, refugee or asylee. Send 2 resumes to Job Order #19982870, P.O Box 8966 Boston, MA 02114

SOFTWARE APPLICATIONS DEVELOPER (Marlboro, MA) Develop & maintain code for systems mgmt software utilizing programming in C/C++ under Windows NT/UNIX platforms. Develop Open VMS operating system based applications utilizing C/C++ Develop dbase applications utilizing C++. Detect & determine the origin of problems in code on different platforms by reading traces & interpret traces to make enhancements & place them in the appropriate section of the code to achieve max performance & efficient multitasking. Detect deficiencies in relational databases & add new functionalities & features. Req's Bachelor's in Com Sci, Math or Eng & 1 yr exp in job offered or 1 yr exp as Applications Programmer or Quality Assurance Techn. The 1 yr exp must include working with C/C++, VMS, UNIX and Windows NT 40 hrs/wk, M-F, 9:00-5:00 $43,000/yr Send resume to Case # 19984088 PO Box 8968 Boston, MA 02114

Software Engineer 8am-5 pm, 40 hrs./wk Requirements: Master's Degree in Computer Science and two years experience as Software Engineer. $31.80/hr Duties: Work for employer at multiple unrelated client worksites throughout U.S. Design analyze, develop and write software programs. Design software solutions, computer systems and networks. Code, modify, test and implement software programs, create web servers on the Internet. Analyze design integrate and develop business application systems. GUI-based software systems and front-end applications. Create test plans and test data. Design and develop programs and applications involving Internet programming. Use object-oriented analysis, Power Builder, Visual Basic, MS-Access, Oracle, C++, COBOL, UNIX and Windows NT. Send resume to Department of Labor/Bureau of Workforce Program Support, PO Box 10869 Tallahassee FL 32302 Reference Job Order number FL#2044373

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DB2 System Administrator

Responsibilities of this Seattle WA-based position include definition and support of the corporate DB2 environment, plus DB2 Database Administration for various applications. Requires 5 years of experience to include DB2 Systems Programming and DB2 Systems Administration. Requires demonstrated knowledge in systems administration (system performance, tuning, configuration, install and support BMC utilities along with other add-on products); database administration (logical design modeling, physical design utilities); application development support (SQL review and tuning, programming standards, consulting); IMS knowledge or on-line application programming experience desirable. Please send your resume to SAFECO Human Resources/EJ/ST/0130, SAFECO Plaza, T-17, Seattle WA 98185, e-mail emjan@safeco.com, fax: (206) 548-7117. EOE

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Software: PowerBuilder, Visual Basic, Visual C++, C, C++, Delphi, Java, HTML, ECOMMERCE, Oracle, SAP, BaaN, Oracle Financials, JDEdwards, COBOL, Vision, MS Office Suite, Lotus Notes, Netwise, Middleware, WEB Enabled Tools, CORBA, NETDYNAMICS, COLD FUSION

Database: Oracle, DB2, MS Access, Sysbase Systems, Informix, XDB, DBA

Project Management Tools: Microsoft Project, Microsoft Office Suite

Administrators: UNIX, HP-UX, AIX, SUN, NETWORK ADMINISTRATION

Multiple positions exist. If you are interested please mail your resume clearly mentioning the reference number CW03 to **Attention Recruiting Dept., Job Ref #CW03, Technosoft Corporation, 31275 Northwestern Hwy., Suite 217, Farmington Hills, MI 48334**

Senior Software Engineer Design and develop object-oriented systems or support business functions and processes. Analyze and model business, industry and application specific processes and requirements using object-oriented methodologies such as Booch, Rumbaugh or Coad/Yourdon. Design, develop and enhance application code and class libraries using object oriented development tools. Object windows library, Rational Rose, MFC, OMT, Visio tools. Use debuggers such as DBX, sun Debuggers, Sun Workshop and version controls such as PVCS, Clearcase, SCCS. Demonstrated ability using design patterns, polymorphism and multiple inheritance in cross platforms software development on UNIX platforms using integrated development tools and configuration management systems. Demonstrated ability to work on ORACLE and Informix database using DbAccess, PL/SQL and SQL*Plus. $71,053/yr, 40 hrs/wk, 8 a.m. - 5 p.m. Must have 2 yrs. exp. (or 2 yrs. Exp. in related occupation of Software Engineer) and M.S. in Comp. Sci., eng. or related/equiv. Send 2 resumes: Case #19983792, P.O. Box 8968, Boston, MA 02114

IT Solutions Director. Job location: Cincinnati, OH. Duties: Resp. for managing & supervising info. tech. staff, budget & expenditures & develop of applications using project mgmt. methodologies. Resp. for mgmt. of info. tech. project execution from conception through completion. This includes system design, budget mgmt., implementation of database strategies conformance to project mgmt. methodology & supervision of project team. Est. & develop info. tech. strategies, policies & security plans using and wide best practices. Requires: B.S. (or foreign equiv.) in Comp. or Info. Sci., Eng. or related field & 5 yrs. exp. in the job offered or 5 yrs. exp. as a Info. Tech. Mgr., Systems Mgr. or Project Leader Exp., which may have been obtained concurrently must incl. 5 yrs. exp. managing info. tech. Project execution & 5 yrs. exp. establishing & developing info. tech. strategies & security plans. EOE. 40 hrs./wk., 8:00 a.m. to 5:00 p.m. Salary: $76,000/yr. Send resume (no calls) to: James R. Collins, CTG, Inc., 700 Delaware Ave., Buffalo, NY 14209

Software Engineer must have MS in comp. sci., eng. Or math. or BS in same w/5 yrs. job exp. Must be proficient in Visual C++, Visual Basic 5.0/6.0, PowerBuilder, ORACLE, PL/SQL, Pro C* C & Unix. Will research design alter & develop comp. s/ware sys. to conv. W/Ware prod. dev't for banking appl's, applying princ. & tech. Of comp. sci., eng. And math'l anal. anal'g user req's proc. & probs. to automate proc'g or to improve existing comp. sys., id. probs. & team specific input/output req's, write detailed descr. Of user needs, prog. Functions & steps req. to dev. or modify comp. progs., conduct studies using sci. analyses or math models pertaining to dev't of new info. Sys. to meet current and proj'd needs, and upgrade sys. & correct errors to maintain syst. after implem'n of applic'ns. Will also be involved in design, devel., docum'n & prep'n & of report'g and prog. 100% trvl. req'd. 2 positions available. Salary: $70,000/yr. Send resumes to VSoft Corporation, 5707 Peachtree Parkway, Ste. 400, Norcross, GA 30092. Attn: Human Resources or e-mail hr@vectorconsulting.com. Reference job # VS-128

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Your areas of competence should include such infrastructure systems as Network (WAN/LAN), Computer Operations, Desktop, Voice Communications, Videoconferencing, Directory, Internet & Intranet services (standards & tools) and Help Desk.

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Senior Systems Officer - To act as the main technical developer for all UNIX software related to Margin, Reporting, Option Linking, and Message Parser developed in C and C++. To review the current technical designs and tune the performance of the various software components to improve processing time for the users. To research the enhancements and bugs submitted by the users, provide technical solutions in a timely fashion, stage modifications to UAT and implementation of software written in C and C++ designed to run on the back end workstation in the operating environment. To exercise broad discretion in UNIX coding and systems design. To work with project leader and database administrator on performance tuning. To provide technical solutions based on user requirements. Must have a MS or equivalent (i.e. BS plus 5 years of progressive experience) in computer science, math, statistics, or related field with one year of experience in the offered position or one year development experience with C, UNIX, SQL, C++ and with Informix or Oracle or Sybase. Must have familiarity with TCP/IP and Network tools. 40 hrs/wk, 9 am - 5 pm, $71,053-86,800/yr plus bonus. Send two resumes to Case #19983209, PO Box 8968, Boston, MA 02114

Software Engineer Positions to design, develop and implement software systems to determine feasibility of design and direct software testing procedures, programming and documentation. Work involves extensive travel and frequent relocation. Must have one year of experience in job offered or as a computer professional as well as 1 year of skills in field. Bachelors degree or foreign equivalent in Computer Sc/Apps., Eng., Chem., Math, Physics or a technical or business related field. Salary: $70,000 per/yr, 40 hrs/wk, 9:00-5:00 p.m. Please submit resumes to Jaime Lopez, Rapidigm, 4400 Campbells Run Road, Pittsburgh, PA 15205

Senior SAP Specialist

Design, develop, integrate and customize SAP R/3 software system by utilizing in depth business knowledge of the manufacturing industry and expertise in multiple functional areas, including production planning, sales & distribution, materials management, etc. and by applying principles and techniques of computer science, engineering, statistics, mathematical and business analysis. Analyze software and business process requirements to determine feasibility of design within time and cost constraints. Consult with business process project team members and other engineering staff to evaluate interface between SAP R/3 software & operational and performance requirements of overall system. Customize, develop and direct SAP R/3 software system testing procedures, programming and documentation. Consult with customer concerning maintenance of SAP R/3 software system. Supervise activities of SAP projects to ensure the proper integration of complex multiple functional areas and indirect analysts. Reqs: Master's degree in Computer Science, Management Information Systems Engineering, Math or Technology or foreign equivalent & 1 yr exp in job offered or 1 yr exp in related occupations of Programmer Analyst, Systems Analyst, Consultant, Senior Applications Developer or Programmer. Alternatively, employer will accept a Bachelor's degree plus 5 yrs of progressive work exp in the computer field. 40 hrs/wk. Several positions available. Send resumes to Attn: Nupur Gupta at 6356 San Ignacio avenue, San Jose, CA 95119

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Carmakers' Ventures Add Value, Not Boom

BY DeWAYNE LEHMAN

THE BIG THREE automakers have joined the rush to capitalize on the hot Internet market, spawning ventures such as an online trading exchange and partnerships to put Web access at drivers' fingertips. But the automakers won't be getting any dot-com-like returns, analysts say.

DaimlerChrysler AG [NYSE:DCX] in Stuttgart, Germany; Ford Motor Co. [NYSE:F] in Dearborn, Mich.; and General Mntnrs Corp. [NYSE:GM] in Detroit have recently unleashed a flurry of announcements about initiatives aimed at boosting their high-tech capabilities. The three last mnnth said they will cooperate on an Internet trade exchange for suppliers, and Ford last week said it will hook up with Sprint PCS Group [NYSE:PCS] to put voice-activated Internet and phone services in some nf its cars.

Ford's stock bounced up 3.8% the day it announced its agreement with Kansas City, Mo.-based Sprint PCS. GM and DaimlerChrysler shares climbed 2.8% and 2%, respectively.

But, said Michael Bruynesteyn, an automotive analyst at Prudential Securities Inc. in New Ynrk, "it won't make a difference nn the stock for a while."

The automakers' business-to-business exchange should cut production costs and generate a hefty revenue from the expected $750 billion in transactions at the site, according to a report by Dresdner Kleinwort Benson Nnrth America LLC in New Ynrk. And the move toward adding mnre services such as GM's OnStar global positioning technology will open up new revenne streams and increase the companies' profitability, analysts predicted.

"The key word would be 'incremental,' " said Efraim Levy, an analyst at Standard & Poor's in New York. "However, in the long term, it's a net positive."

In the technology race, analysts give Ford and GM a clear lead over Daimler-Chrysler, which has been slow to develop high-tech alliances. GM is likely a bit ahead of Ford, some analysts said, but it's far too early tn call the race.

David Garrity, an analyst at Dresdner Kleinwort, also gives GM an edge. GM's stock is up 7% for the year, whereas the other twn automakers have lost stock value. GM also has a larger stake in the companies' automotive exchange, Garrity said.

Standard & Poor's gives GM the highest rating among the three, projecting $10.26 in earnings per share and stock valuation growth of 10% tn 20% during the next six to 12 months, according tn Levy.

Ford and DaimlerChrysler are projected to have stock appreciation of up to 10%, with earnings per share of $5.95 and $6.70, respectively, Levy said, though those estimates don't focus on Internet initiatives alone.

The Big Three

Stocks of the Big Three automakers are showing mixed results:

	2/14 CLOSE	3/14 CLOSE
GM	$75.00	$76.06
DaimlerChrysler	$65.75	$62.56
Ford	$47.06	$41.00

KEY (H) - New annual high reached in period
(L) - New annual low reached in period

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Win 2K to Be E-Biz OS at Services Start-up

Microsoft, Andersen in B-to-B market bid

BY DOMINIQUE DECKMYN AND JULEKHA DASH

MICROSOFT Corp.'s $1 billion services venture with New York-based Andersen Consulting, announced last week, is a gutsy move and not without risk, say users and analysts. While the venture, called Avanade, may help Microsoft catch up in the e-commerce arena, it could also alienate systems integrators the vendor relies on in other areas, they said.

Avanade will provide professional services around Windows 2000 (see chart). For Andersen, it provides an early leap into Windows 2000-based solutions, said Dwight Davis, an analyst at Summit Strategies Inc. in Boston.

"I'm surprised by the level of commitment this represents from the part of Microsoft to try to position its platforms for e-business and e-commerce applications," said David Cearley, an analyst at market research firm Meta Group Inc. in Stamford, Conn. "They need to do this because they are behind in [electronic business]."

In particular, the creation of Avanade may help Microsoft grab a larger piece of the emerging market for business-to-business exchanges, said Carl Lenz, a research analyst at Gartner Group Inc. in Stamford. "This allows Andersen to use Microsoft infrastructure to create [online] marketplaces," said Lenz.

So far, Microsoft's own consulting efforts have been limited to advising large customers about the rollout of specific Microsoft products; it has chosen to partner with leading integrators for everything else. Departing from this approach may alienate key integrators such as KPMG Consulting LLC, with which it announced an electronic-business alliance only last month, Cearley said.

"Microsoft is in no position to make waves with these other vendors," said Albert Nekimken, an analyst at Input in Vienna, Va.

Cearley also questioned the approach of forming a new company exclusively around Microsoft products.

"Things are moving more toward openness and heterogeneity," said Cearley. He said Avanade will need to integrate technologies from multiple vendors to be successful.

If it does, that would be good news to Darren MarElia, director of Windows NT architecture and planning at San Francisco-based Charles Schwab & Co. "The area where I think Andersen can probably add the most value over Microsoft Consultancy Services is in heterogeneous environments, where a Microsoft solution must coexist with other platforms and architectures," said MarElia.

"I think it's a very smart move from Microsoft," said Deb Mukherjee, vice president and chief technology officer at Los Angeles-based Farmers Insurance Group of Companies. "They needed to do something dramatic and provocative."

Mukherjee said he is unlikely to call on the services of Avanade. But he said the fact that Microsoft is backing up its enterprise ambitions gives him more confidence in Windows 2000 as an enterprise platform.

JUST THE FACTS

Microsoft/ Andersen Deal

- **Companies** will form Avanade, a joint venture to provide services for e-commerce and Windows 2000
- **Avanade** will recruit 5,000 employees
- **Andersen** will create separate Windows 2000 consulting practice
- **Microsoft** dedicated $385M. Andersen provided $600M worth of services

Continued from page 1

B-to-B Exchanges

neither complete nor appropriate product offerings — a problem sources attribute to the company's strong desktop and client/server legacy.

"What drives this space is applications," said Laurie Orlov, research director at Forrester Research Inc. in Cambridge, Mass. "Microsoft, in my view, has not made a very convincing play."

In addition, doubt about Microsoft's Windows 2000 platform centers on the operating system's scalability and reliability. "The number of servers that can run in parallel is limited to four, and Microsoft is nowhere near 'five-nines' " reliability, said Randal Chin, an equity analyst at Deutsche Banc Alex. Brown Inc. in San Francisco. Chin added that Oracle now claims three exchanges, and Ariba is providing procurement services to 50. "Microsoft is nowhere to be seen," Chin said.

Oracle, in contrast, offers a database engine, applications and ease of integration with third-party tools, such as those from i2 and Ariba.

"Ninety percent of Ariba implementations are done on Oracle," according to Adil Khan, president of Hencie Consulting Services Inc., an Internet integration consultancy that's working on the Big Three automakers' exchange.

Chris Renner, president of online packaged-foods marketplace INC2inc Technologies Corp. in Dallas, said he selected Ariba's procurement tools for their "relative maturity" compared with other products.

Rich Niemiec, CEO of The Ultimate Software Consultants in Lombard, Ill., said an Oracle-based exchange "implementation will be a lot less painful than you think. The [Oracle]8i database can do everything needed" and works with terabyte-size databases.

"If Oracle is the transaction backbone for the exchange, it is less likely that Microsoft technology will be involved," because Oracle applications integrate badly with Windows, said Bob Parker, an analyst at AMR Research Inc. in Boston. Parker agreed that Microsoft hasn't been visible in the business-to-business space but said it may have time to catch up.

Becky Kaske, director of product industries at Microsoft, sees multiple roles for Microsoft technology in future exchanges. The company can provide the base platform and draw in traffic by providing news feeds and links to Microsoft properties such as MSN.com. She said her company's involvement with Myplant.com, a Honeywell Inc. Web site, Healtheon/WebMD Corp. and the newly announced RetailEnterprise.com prove it can provide Internet marketplaces.

"I think it will be a battlefield," Parker said. Oracle will be forced to better integrate with Windows, and Microsoft will need to be more open, too. "The real winner will be the corporate user," he added.

Microsoft Venture Targets Real Estate Field

BY MATHEW SCHWARTZ

Microsoft Corp. last week announced the creation of HomeAdvisor Technologies Inc., a company that will release software to streamline the home buying and selling process. It also announced partnerships with several large lending institutions.

In a statement, HomeAdvisor.com CEO Bryan Mistele said, "We're tying together underwriting engines, credit-reporting engines and title information as well as consumer and pricing information." The software will debut next month.

While online commerce has changed the way people shop, the venture is one of the first to actually reinvent a process, said Jaime Punishill, an analyst at Forrester Research Inc. in Cambridge, Mass.

"Microsoft is fundamentally changing the mortgage process, which hasn't changed in about 50 years. It's about damned time," said Punishill.

Currently, it takes about 65 people to buy or sell a single home, said Punishill. Microsoft's software aims to automate as much of the mortgage process as possible, such as providing real-time approvals and loan rates to customers.

In a related move, Microsoft announced the acquisition of Mill Valley, Calif.-based Tuttle Decision Systems Inc., a maker of electronic pricing and productivity software for the mortgage banking industry.

Last year, Tuttle coordinated more than $110 billion in mortgage loans. It also electronically connects more than 800 U.S. mortgage-issuing banks to mortgage information conduits. Microsoft made a minority investment in the company last August.

HomeAdvisor's initial customers will be lenders, not consumers. "This is all about selling more Microsoft stuff," said Punishill. "It's about Microsoft trying to find another way to penetrate financial services, where it has struggled in the past."

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FRANK HAYES/FRANKLY SPEAKING

The end of the world

THE END OF THE WORLD is back again. Hey, I know *I've* missed it these past few months. Once Y2k turned out not to be a global disaster — thank you, IT people everywhere! — it was back to the same old life-goes-on grind. But now Bill Joy, one of the founders of Sun Microsystems, is afraid that robotics, genetic engineering and nanotechnology could destroy humanity in our lifetime.

Or, more to the point, in Bill Joy's lifetime.

Joy's essay "Why the Future Doesn't Need Us," published in the April issue of *Wired* magazine, quotes Theodore "Unabomber" Kaczynski, the Dalai Lama, Arthur C. Clarke, Thoreau, Nietzsche and some very smart, very technical guys Joy knows personally. His fear is plain, and his argument is simple: Technology isn't safe anymore. Self-replicating robots and gene-spliced organisms pose a new and far greater danger than anything we've seen before.

They're more threatening than nukes or other weapons of mass destruction, Joy insists. And we need a new dialogue, a new ethic, a new *brotherhood* to keep these threats from destroying us.

You can read the essay yourself on the Web at *www.wired.com/wired/archive/8.04/joy.html*. It's very earnest. It's very heartfelt. It's very frightened. And it's very, very wrong.

Not that part about needing a serious discussion of the dangers of technology and the importance of ethics and community. We certainly need all that. We've needed it for every world-changing technology in history.

But this isn't the end of the world.

Oh, it could be — just as the nuclear arms race or one of the deadly bugs and chemicals we've cooked up for years could end it all. We've seen other species wiped out. We're not immune to extinction. We could do ourselves in.

But it hasn't happened yet.

Naturally, some people told Joy exactly that. "Many other people," Joy writes, "who knew about the dangers" told him that these problems aren't new and that his arguments are "already old hat."

And Joy is clearly baffled that they aren't as alarmed about these threats as he is. "I don't know where these people hide their fear," he writes.

Bill Joy's argument is simple: Technology isn't safe anymore.

How can they not worry that in 30 years, highly productive intelligent machines might idle all human workers? Maybe because people have feared automation for centuries. But today, with more technology and higher productivity than any other nation on earth, we still work longer hours, and more jobs go unfilled. Maybe the risk of everyone being put out of work by technology isn't so large after all.

How can they not fear that genetically engineered plants and animals could wreak ecological havoc? Maybe because we've wreaked plenty of ecological havoc for decades without gene splicing, from kudzu that tears down telephone poles to anti-biotic-proof bacteria to toxic wastes working their way up the food chain. And despite the problems, we're still here.

How can they not fret that someday nanomachines could run amok? Maybe because we've lived in the shadow of nuclear doomsday machines for as long as Bill Joy has been alive. Hadn't you noticed, Bill?

I suspect he hadn't. But now, whether it's a midlife crisis or the sudden discovery of his mortality or just that he finally raised his head long enough to take a good look around, Bill Joy can see the end of the world.

Like the people who calculated that Y2k *must* be a disaster — because it was mathematically impossible to check every line of code at risk in the time left with the programmers available — what he sees is a terrifying mirage.

But unlike those people, Joy will never wake up on 1/1/2000 and know for sure he was wrong.

And that means he could be waiting in fear of the end of the world for a long, long time. ◗

Hayes, Computerworld's staff columnist, has covered IT for more than 20 years. His e-mail address is frank_hayes@computerworld.com.

SHARK TANK

INVISIBLE Flash back to last year, when two Chicago securities firms merge and bring in outside consultants to fold all the data together. Very high-profile – you'll get all the resources you need, they're told. Yeah, right. One day all but a single pilot fish are pulled off the data job. He has to test his own code changes ("not a good programming practice," he points out) and clean up lots of dirty data that snuck in because the analysts got rushed. After three months of days, nights and weekends, it's done. So when the CIO hands out gifts for the people who put in extra effort, who gets the prize for the data warehouse work? Who else: the employee who set up the file transmission schedule.

INNAMEABLE With tales of cruelty to consultants abounding, a pilot fish reports with alarm that TRW has cut loose 1,100 of its 1,800 IT consultants, and IT top cats are jumping ship. Not so. TRW vows. The "consultant" title is now reserved for nontechnical staff, techies are now renamed "technical services staff," a TRW spokesguppy says.

INCREDITABLE Web hosting ISP owes pilot fish's company a credit. No problemo, ISP says. The next song change. The fish hears from accounting that the credit has shown up – in the form of a letter from a collections agency. Yep – somehow the ISP managed to convert a credit into an overdue account. One day a sales guy from the ISP calls, trying to peddle DSL. Pilot fish tersely explains the credit situation. Upshot: "It's astounding how fast sales can fix a billing snafu."

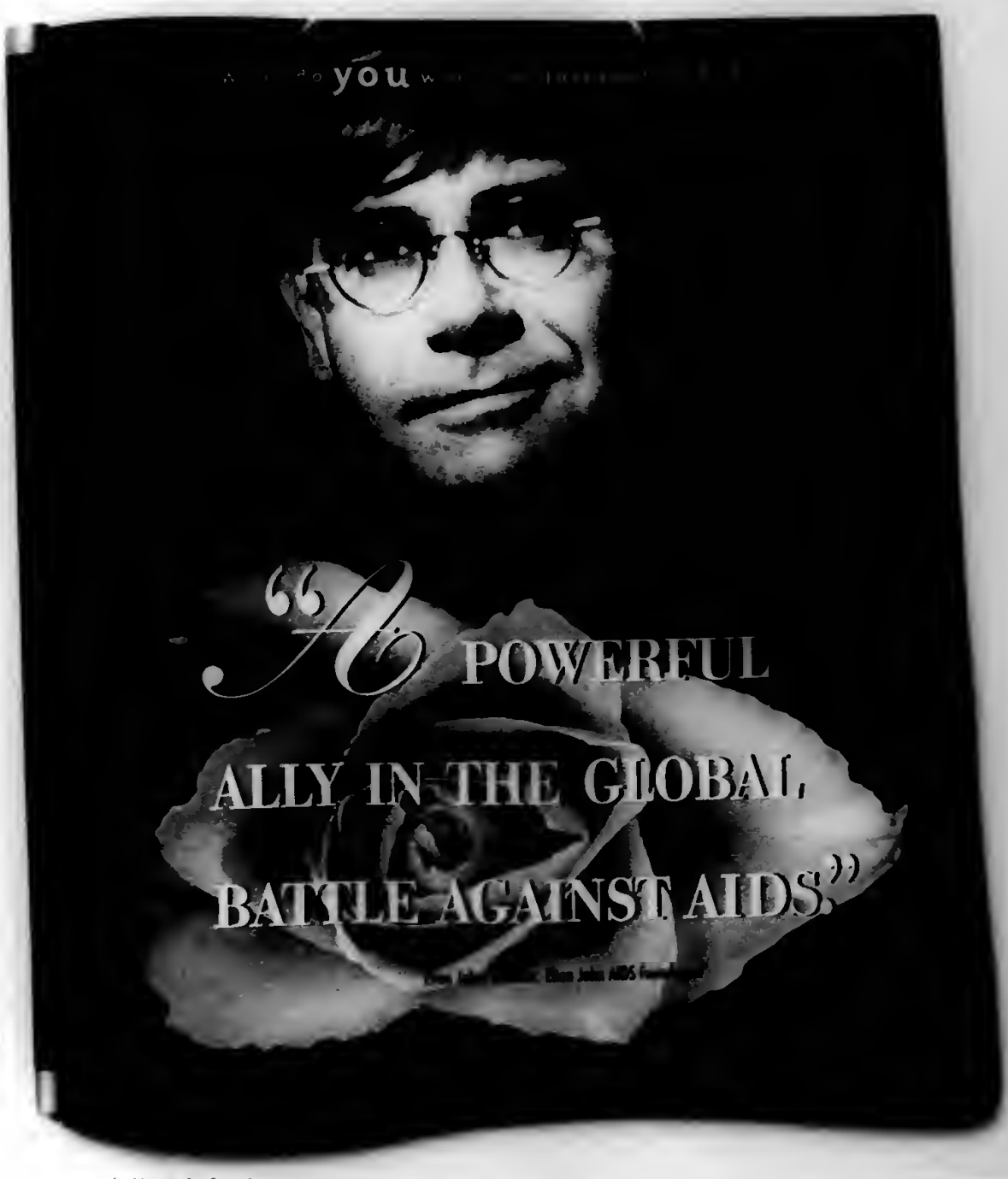
Y2K PLUS 11 WEEKS A pilot fish reports that shipping software provided by Federal Express went haywire Feb. 29, printing out shipping labels containing random 21st-century years. Turns out FedEx had a patch available, but the fish's company never heard about it. Once leap day was over, everything was fine.

Y2K MINUS 31 YEARS Another pilot fish reports online computer superstore AccessMicro.com recently set a cookie on his browser with an expiration date in 1969.

A snickering pilot fish pointed out that *iis.computerworld.com*, which sends out a daily Shark Tank e-mail, was still serving up the default Microsoft IIS Web server page. It's fixed now, and yeah, he gets a Shark shirt. You can too: Dish dirt to **sharky@computerworld.com**. And get more Shark every day at *computerworld.com/sharky*.

The 5th Wave

"Oh yeah, he's got alot of money. When he tries to check his balance online, he gets a computer message saying there's 'Insufficient Memory' to complete the task."



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